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The U.S. Supreme Court Limits Federal Regulation of Wetlands: Implications of the SWANCC Decision

By Jennifer Ruffolo

*Prepared at the request of
Senator Sheila Kuehl
Chair, Senate Natural Resources
and Wildlife Committee*

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C A L I F O R N I A

R E S E A R C H B U R E A U

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Executive Summary

Until fairly recently, Americans regarded wetlands as unpleasant swamps that impeded the progress of civilization. Across the nation, millions of acres of freshwater and coastal wetlands were diked, drained, and filled to create cities, ports, and agricultural lands. But beginning in the 1970s, it became apparent that the remaining wetlands were of significant economic, aesthetic, and ecological value. The nation realized that it had lost enormous amounts of wetlands that are important for controlling floodwaters, removing contaminants and sediment from our water supply, and supporting large numbers of birds, plants, and animals.

California, like most other states, has not needed a comprehensive wetlands regulatory program because the federal Army Corps of Engineers took that burden on itself. Since 1972, Section 404 of the Clean Water Act authorized the Corps to require permits for dredging and filling of all “navigable waters.” Federal law defined navigable waters as “all waters of the United States.” Over the years, the Corps has interpreted these phrases to include wetlands far removed from traditionally navigable waters, such as vernal pools and desert playas. In 1986, they expanded their jurisdiction to cover wetlands used as habitat by migratory birds. As a result, the Corps ran a fairly inclusive wetlands regulatory program.

Most of the time, the courts have supported the Corps in these interpretations. In January 2001, however, the U.S. Supreme Court objected to this expansive interpretation of Corps’ authority. In its ruling in *Solid Waste Agencies of Northern Cook County v. U.S. Army Corps of Engineers* (now known as SWANCC), the Court determined that the Clean Water Act did not extend to isolated wetlands that provide habitat for migratory birds or endangered species. As is often the case with the court’s 5-4 decisions, this ruling is enigmatic at best. It might be the beginning of a series of decisions that limit federal wetland protection to traditional navigable waterways, their tributaries, and some nearby wetlands. That reading would mean the end of federal regulation of vernal ponds, desert springs, interior drainage waterways (perhaps including streams in the lower San Joaquin Valley), and some other wetlands of importance in California. It would also eliminate federal authority over water quality in these waters, which would mean that federal permits would no longer be required to discharge wastes to such isolated waters. Or, the ruling could end with a practical effect rather less than that. Some years of ambiguity lie ahead as regulatory and legal processes sort out the effects of SWANCC.

As a result of SWANCC, some wetlands will no longer be subject to Corps regulation. These wetlands are not completely unregulated, however, as endangered species laws and the state water pollution control law continue to govern some of them. Both state and federal endangered species act provisions still apply to wetlands that harbor listed species. However, there is no mechanism that automatically involves the U.S. Fish and Wildlife Service in reviewing a project’s effects on fish and wildlife habitat if a Corps of Engineers or other federal permit is no longer required.

Similarly, wetlands no longer subject to the 404 program are still governed by the California water pollution control law, the Porter-Cologne Act. It requires landowners to

file permit applications, and the State Water Resources Control Board (SWRCB) to issue or deny a permit (or a waiver), for any discharges of wastes to wetlands in the state. However, the SWRCB and the nine Regional Water Quality Control Boards have not used this authority, relying instead on the Corps to be the primary regulatory of wetlands. Consequently, the state's authority to regulate wetlands is not administratively developed, has no regulatory details, and is almost completely without staffing. It is also largely unknown to landowners and local governments. Some landowners may not be aware that state law requires them to obtain a permit from the appropriate Regional Board for projects involving isolated wetlands, and misunderstandings and litigation may arise. It is also possible that some, perhaps many, California wetlands will fall through the cracks in the federal-state regulatory structure. This could result in the loss of unique wetlands that provide habitat for rare, endangered, and threatened species, as well as for migratory birds.

A central theme of the SWANCC decision is that regulation of wetlands beyond navigable waterways is properly the province of state and local governments. It invites California's legislature, governor, and relevant regulatory agencies to consider whether to beef up the state's regulatory program for isolated wetlands in order to replace the enfeebled 404 program. If the state were to move in that direction, there are several options, ranging from replicating the 404 program just for the state's isolated wetlands to embellishing the Porter-Cologne Act to clarify its authority over wetlands. Amendments to Porter-Cologne could explicitly require reports of waste discharge for all projects involving wetlands, require the SWRCB to develop a statewide wetlands policy, and develop a wetlands beneficial use designation. Additional funding and staff resources would be needed to carry out these amendments. Alternatively, the Legislature could create a new statewide wetlands regulatory scheme that could take an ecologically based (rather than water quality based) approach to protecting and managing the state's wetland resources.

This essay reviews the history of federal wetland regulation, the Supreme Court's decision, and the Corps' response so far. It attempts to identify the wetlands or at least areas of the state from which federal regulation may be withdrawn. It summarizes California's programs that may have legal authorization to continue regulating wetlands even as the Corps withdraws in compliance with SWANCC. In conclusion, it suggests that in considering how to respond to SWANCC, California should weigh the risks presented by the SWANCC decision against the costs of state regulation of wetlands.

SWANCC presents the state with an opportunity to assess the ecological and economic benefits of the state's remaining isolated wetlands, the costs of protecting them, and to determine whether the state should take the lead in their regulation. There are several reasons for the state to act, including achieving the state's goal of "no net loss" of wetlands and to improve regulatory consistency for landowners and developers. The regulatory options available to the state range from waiting for further clarification of how the federal government will interpret SWANCC to developing a statewide wetlands regulatory program. Other, non-regulatory options include creating a grant program as an incentive for landowners to conserve isolated wetlands, creating a statewide wetlands conservancy, and using parks bond funds to acquire and preserve vernal pools.

Introduction

Wetlands are among the most productive and important ecosystems in the world. They generate food and serve as habitat for an enormous variety of birds, fish, plants, and animals, many of which are endangered or threatened. Wetlands filter and purify water, cleansing it of pollutants and sediments; they help to control flooding and prevent erosion. In addition, they support a multi-billion dollar recreation industry built on bird watching, hunting, and fishing.

California has lost a greater percentage of its wetland acreage than any other state, with 91 percent of original wetlands habitat now drained or filled. In some places the only remaining wetlands are on federal lands. In the Death Valley region of the Mojave Desert, groundwater pumping and diversion of surface waters have drained most of the wetlands everywhere but inside the Death Valley National Park. In the San Diego region, Camp Pendleton Marine Corps Base is virtually the last large tract of land with intact vernal pools, swales, and streams. Most remaining wetlands are privately owned, and they are vulnerable to development through conversion of agricultural lands to urban use and by pumping groundwater that supplies springs and seeps in the desert. The state's substantial loss of historic wetland and riparian resources arguably increases the value of the remaining wetlands.

Nationwide, the U.S. Army Corps of Engineers (Corps) regulates wetlands through its authority under the Clean Water Act. Section 404 of the Clean Water Act prohibits the discharge of fill material into the "navigable waters" of the United States without a permit from the Corps. The Corps' regulations define "navigable waters," and thus the extent of the Corps' jurisdiction under Section 404. Federal regulatory authority over navigable waters originates the Commerce Clause of the U.S. Constitution: the Commerce Clause allows Congress to "regulate commerce with foreign nations and among the several states, and with the Indian tribes." Navigable waterways are theoretically, and sometimes actually, necessary for commerce to occur.

Gradually, the Corps has expanded its interpretation of its jurisdiction under the Clean Water Act to include a variety of wetlands that have no direct role in interstate commerce (in the sense that they are not aquatic highways along which barges and tankers move goods from one state to another), but whose destruction could affect interstate commerce in a broader sense. These wetlands include intrastate lakes, rivers, and streams, vernal pools, prairie potholes, intermittent streams, and wet meadows. Over the years, the courts have supported the Corps' interpretation, in part because the legislative history of the Clean Water Act suggests that Congress intended to expand the Corps' jurisdiction so that it could protect the ecological integrity of the nation's waters, not merely those waters used in interstate commerce.

Until January 2001, most wetlands in the nation fell were subject to the Corps' regulatory program. However, in its January 9, 2001 ruling in *Solid Waste Agency of Northern Cook County v. U.S. Army Corps of Engineers*, No. 99-1178 (SWANCC), the U.S. Supreme Court determined that the Clean Water Act did not extend to isolated wetlands that are not adjacent to navigable waters. The Court ruled that the Corps' "Migratory Bird Rule"

was invalid. The migratory bird rule asserted that the Corps had jurisdiction over wetlands that provided habitat for migratory birds. In contrast with earlier decisions, the Court found that merely providing habitat for migratory birds is not a sufficient connection to interstate commerce to warrant federal regulation. In its decision, the Court stated that state and local government, rather than federal agencies, should regulate such waters.

Under SWANCC, isolated, intrastate wetlands that were under Corps jurisdiction solely because they supported migratory birds may now be excluded from federal regulation. However, the effects of SWANCC are as yet unclear. Depending on how the SWANCC decision is interpreted, 30 to 80 percent of the nation's total wetland acreage could be affected.¹ The Court suggested that regulation of isolated wetlands would need to meet a more rigorous Commerce Clause standard to demonstrate that federal regulation was warranted. However, the Court did not explain which connections between isolated wetlands and interstate commerce would justify federal regulation (e.g., bird watching, hunting, tourism, water quality improvement, etc.). Exactly which waters lie outside of federal regulation will not be fully known until the Corps and EPA issue further guidance on connections to interstate commerce and definitions of navigable waters, and future court cases tell us whether these interpretations are valid.

There is no comprehensive state program to regulate wetlands in California. Currently, state wetlands policies recognize the ecological and economic benefits of wetlands, and encourage preservation and acquisition by public and private entities. However, California has no standard definition of wetlands, wetlands classification scheme, or statewide inventory of wetlands. The Corps is the primary wetlands regulator, while the State Water Resources Control Board certifies that the Corps' permits comply with state water quality standards. Several other state agencies, including the Coastal Commission, the Department of Fish and Game, and the San Francisco Bay Conservation and Development Commission, have limited authority over specific wetlands. Aside from the Corps' 404 program, California has only a partial system for regulating wetlands.

As a result of the SWANCC decision, some isolated wetlands in California may no longer be subject to federal regulation. Most California wetlands are non-navigable, seasonal wetlands, such as vernal pools, wet meadows, playa lakes, and ephemeral streams. These are the types of wetlands that, for the most part, relied on the Migratory Bird Rule to be considered jurisdictional waters under the Section 404 program. There is no complete inventory of the location and extent of these isolated wetlands, although vernal pools are known to occur in many regions of the state. Ephemeral and intermittent streams are scattered throughout the state, and playa lakes are found in the Mojave and Colorado Deserts. Isolated wetlands also perform a variety of services, such as cleansing waters of pollutants, controlling floods, and recharging groundwater supplies. Vernal pools are home to 82 rare, endangered, and threatened species of plants and wildlife. Isolated wetlands contribute to the biological diversity of the state.

For those wetlands potentially excluded from federal regulation by SWANCC, other regulations still apply. For wetlands containing species listed by the federal or state government as threatened or endangered, the endangered species laws will continue to protect habitat, although without the federal permit, there is no "trigger" to invoke the federal Endangered Species Act. Other state environmental statutes, such as the

California Environmental Quality Act (CEQA), the Fish and Game Code, and the Water Code, still apply. However, with one exception, these are primarily environmental review statutes, or are meant to prevent the destruction of streams and creeks. The state's water pollution control law, the Porter-Cologne Act, gives the state the authority to regulate discharges of wastes into isolated wetlands. In fact, the law requires that such discharges be reported to the appropriate Regional Water Quality Control Board. In practice, however, the Regional Boards have not enforced this requirement, relying instead on the Corps to take the lead in regulating wetlands. Regional Boards certify that Corps permits meet state water quality standards, and have the authority to add conditions to their certifications to ensure compliance with state standards. Although in some regions, the water quality control boards have established policies for regulating wetlands, most lack the policy basis and staff resources to regulate those wetlands affected by SWANCC.

An analysis of the SWANCC decision necessitates an explanation of the very complex and contentious world of wetlands regulation. In the interest of keeping this paper to a reasonable length, many of the programmatic issues involved in wetlands regulation are not addressed in depth, although some are mentioned. These include the difficulties associated with defining and delineating wetlands; the mechanics of the Corps' nationwide, or general, permit program and recent proposed changes; wetlands mitigation banking and the uncertainties associated with wetlands restoration and creation; and the host of private property rights issues associated with wetlands regulation. The bibliography contains many works that address these issues.

This paper focuses on the legal concepts and policy issues raised by the SWANCC decision. It gives a brief overview of wetlands in Chapter One. It lays out various wetlands definitions and classification schemes, as well as the benefits that wetlands provide to society. It also describes California's unique assortment of wetlands, particularly those that may be considered to be "isolated" after SWANCC. The chapter concludes with a discussion of the extent of California's wetlands losses. Next, Chapter Two turns to the complex federal wetlands regulatory scheme, focusing on the interstate commerce basis for regulating wetlands under the Clean Water Act, with an assessment of its effects in California. Turning to the SWANCC decision, Chapter Three describes the majority and dissenting opinions, and the range of potential national impacts. The fourth chapter reviews the debate over the SWANCC decision's effects on regulatory policy, revisiting the concepts of navigable waters and interstate commerce. The fifth chapter reviews California's hodgepodge of wetlands regulatory programs, and analyzes the wetlands regulatory capacity of the state's water pollution control statute. The sixth chapter describes how particular types of isolated wetlands in California might fare in the post-SWANCC regulatory world. Last, the essay concludes with some thoughts on the risks presented by SWANCC, the costs of state regulation of isolated wetlands, and a few policy options.

Chapter One: What Are Wetlands?

Wetlands are links between water and land, forming some of the most productive ecosystems in the world. Comparable to coral reefs and rain forests in their productivity, wetlands generate food and serve as habitat for an enormous variety of birds, fish, plants, mammals, insects, and microbes. Wetlands provide spawning and nursery areas for both freshwater and marine fisheries, which contribute over \$100 billion annually to California's economy.² In addition, they support an enormous recreation industry built on bird watching, hunting, and fishing.

Wetlands provide valuable resources and services for humans. They produced and preserved many of the fossil fuels on which our society now relies. As the downstream receivers and processors of wastes from both natural and human sources, wetlands are sometimes described as the "kidneys of the landscape." They cleanse polluted waters, prevent floods, protect shorelines, and recharge groundwater aquifers.

Wetlands play major roles in the landscape by providing unique habitats for a variety of plants and animals. While the values of wetlands for fish and wildlife protection have been known for several decades, some of the other benefits have been identified only recently.³

OVERVIEW OF WETLANDS

In general, the term "wetland" refers to areas that are covered with shallow and sometimes temporary or intermittent waters. One author described wetlands as "halfway worlds between terrestrial and aquatic ecosystems that exhibit some of the characteristics of each." Wetlands occur along gradients between well-defined aquatic regions and uplands, exhibit a wide range of hydrology, and vary considerably in size, shape, and appearance.⁴

A General Description of Wetlands

Because they vary widely and often serve as transitions between wet and dry land, wetlands do not have clear boundaries and are often difficult to identify. Wetlands habitats are usually defined by the types of plants and animals they support. These vary, depending on the hydrologic regime, substrate, water source, and water quality of the site.*

Water may reach a wetland from many sources, including rainfall, surface runoff, groundwater, tidal flooding, over bank flooding, and backwater flooding. The water may be fresh, brackish, salty, or hypersaline. It may also be high or low in nutrients and acidic, neutral, or alkaline.

* This description of wetlands borrows liberally from Paul Cylinder, Kenneth M. Bogdan, Ellyn Miller Davis, Albert I. Herson, *Wetlands Regulation in California*, Solano Press Books, Point Arena, CA. 2nd Printing, 1995, pp. 7-18.

The hydrologic regime, or pattern of occurrence of water in the wetland, may vary in its frequency, duration, depth, scouring action, and seasonal timing. For example, tidal marshes are inundated twice daily, but desert playa wetlands may only pond during years of high rainfall. The freshwater marshes of the Sacramento-San Joaquin Delta are flooded or saturated year round, while vernal pools in the surrounding Central Valley may only hold water for several weeks in any given year. Wet alpine meadows obtain just enough water to saturate the soil, while tule marshes may be inundated to depths of six feet.

The substrates on which a wetland develops include cobbles, gravels, sand, fine silts, dense clays, organic material, and combinations of these. Substrates may vary in thickness from several inches to tens of feet, and can vary greatly in nutrient content, acidity, and chemical composition.

These four factors – water source, water quality, hydrologic regime, and substrate properties – are not independent, but each usually affects all the others. Different combinations create different types of wetlands. Several examples describe the wide variety of wetlands produced by different combinations of these factors:

- *Riparian forests* grow along riverbanks and are dominated by trees, such as willows and cottonwoods. Usually their source of water is from over bank or backwater flooding, and the water is fresh. Seasonal flooding takes place in late winter and early spring and can last for a few weeks to a month or more. The site may flood annually or less frequently. Strong scouring can occur, and the summertime water table generally lies within 20 feet of the surface. Typically the substrate is deep sand or gravel, highly enriched with nutrients carried with the floodwater.
- *Tidal salt marsh* is a wetland habitat dominated by low, perennial plants such as salt grass, pickleweed, and cord grass. Tidal flooding from the ocean is its primary source of water, which is saltiest during the summer. Twice daily flooding, varying in duration from one to several hours depending on elevation, characterizes the hydrologic regime. Monthly variations in the level of highest and lowest tides correlate with the phases of the moon. The soil, with its typical substrate of fine silts or clay, is saturated at all times, and tidal scouring can be strong.
- *Vernal pools*, dominated by small annual plants such as meadowfoams, popcorn flowers, goldfields, and downingias, are an example of a uniquely Californian wetland. California's vernal pools are distinct from eastern vernal pools because of the combination of their soils, which prevent downward percolation of water, and California's Mediterranean climate. The combination creates a unique hydrology in which the ponds are mostly filled by rain during late fall, winter, and early spring, and are completely dry during the summer. Warm spring temperatures bring colorful wildflower displays and slow evaporation of the pools. By summer, the pools are completely dry and the flowers gone. Most plants and invertebrate animals of the vernal pools endure the dry summer and fall as dormant seeds and eggs. Vernal pool soils are shallow and underlain by an impervious layer of dense clay, cemented

hardpan, or bedrock that allows the pool to hold water while upland habitats do not.

These are only three examples of the types of wetlands found throughout the United States and California. Other types of wetlands include mudflats, freshwater vegetated wetlands, diked lands, salt ponds, prairie potholes, lakes, rivers, and streams. As will be discussed below, California's Mediterranean climate and unique geography have resulted in a fairly high proportion of seasonal wetlands, such as vernal pools, intermittent streams, and desert seeps and springs. Such wetlands can be dry for part of the year, and might not be recognized as wetlands by the untrained observer.

Wetlands Definitions and Classification

Various definitions of wetlands exist, each of which is used by a particular agency in carrying out its legislative mandates. A subsequent chapter of this report discusses the definitions and delineation procedures used by the Corps and U.S. Fish and Wildlife Service (FWS) in more detail. For present purposes, it is important to note that wetlands definitions and the procedures by which they are identified and delineated are of "great practical concern because of nationwide regulation of wetlands. If flawed definitions lead to the identification of wetlands where they do not exist, landowners will unjustifiably lose the flexibility to develop and use their land. If, on the other hand, definitional or procedural flaws lead to the exclusion of true wetlands, then they will not reflect the intent of legislation to protect wetlands."⁵

Wetlands are generally defined in terms of the factors described in the previous section: substrate or soils, vegetation, and hydrologic regime. The National Research Council developed a reference definition to be used outside of any agency, policy, or regulation. A reference definition is useful to put in perspective the regulatory definitions and the selection of criteria and indicators used for regulatory purposes. A regulatory definition, in contrast, might reflect regulatory policy or legislation that restricts or extends regulatory jurisdiction in ways that differ from the reference definition. The Council's reference definition is as follows:

*A wetland is an ecosystem that depends on constant or recurrent, shallow inundation or saturation at or near the surface of the substrate. The minimum essential characteristics of a wetland are recurrent, sustained inundation or saturation at or near the surface and the presence of physical, chemical, and biological features reflective of recurrent, sustained inundation or saturation. Common diagnostic features of wetlands are hydric (wet and generally lacking oxygen) soils and hydrophytic vegetation (vegetation adapted to living in water). These features will be present except where specific physicochemical, biotic, or anthropogenic factors have removed them or prevented their development.*⁶

This reference definition is notable for its description of wetlands as *ecosystems*. The ecosystem concept is currently being used in a wide variety of natural resource management efforts, including watershed preservation and restoration and habitat protection for endangered species.

For the purpose of illustrating the difference between regulatory and reference definitions, the Academy's broad, all-encompassing reference definition contrasts with the FWS definition:

*Wetlands are lands transitional between terrestrial and aquatic systems where the water table is usually at or near the surface or the land is covered by shallow water. For purposes of this classification, **wetlands must have one or more of the following three attributes**: (1) at least periodically, the land supports predominantly hydrophytes; (2) the substrate is predominantly undrained hydric soil; and (3) the substrate is nonsoil and is saturated with water or covered by shallow water at some time during the growing season of each year. (emphasis added)*

The FWS definition specifies that there are three defining characteristics of wetlands: wetlands vegetation, wetlands soil, and hydrologic regime. Only one characteristic must be in evidence, allowing inference of the others, for an area to be a wetland. Further narrowing the field of wetlands that fall within its regulatory purview, the Corps definition requires all three characteristics (hydric soils, wetlands vegetation, and water) in defining wetlands as:

*Those areas that are **inundated or saturated by surface or ground water** at a frequency and duration sufficient to support, and that under normal circumstances do support, a **prevalence of vegetation typically adapted for life in saturated soil conditions**. Wetlands generally include swamps, marshes, bogs, and similar areas. (emphasis added)*

Wetlands can be classified in a variety of ways. In particular, wetlands can be seasonal or perennial, also called permanent, depending on the duration of inundation or saturation. They can also be classified by the type of dominant plants, topography, or water chemistry. Classification is important because it allows us to identify the extent, diversity, and functions of wetlands in a given geographic area.

In 1979, the FWS adopted a hierarchical classification of wetlands known by the name of its developer, L. M. Cowardin. Cowardin recognizes five major wetland classifications: marine, estuarine, lacustrine, riverine, and palustrine. Marine and estuarine wetlands are associated with the ocean and include coastal wetlands such as tidal marshes and mudflats. Lacustrine wetlands are associated with lakes, while riverine wetlands are found along rivers and streams. Palustrine (from *palus*, the Latin word for marsh) wetlands may be isolated or connected wet areas and include marshes, swamps, and bogs.⁷ The Cowardin classification has become the standard used by federal wildlife agencies, wildlife biologists, botanists, and ecologists.

Wetlands Functions and Values

Wetlands are important links in every ecological system, including estuaries, deserts, grasslands, and forests. Wetlands have both utilitarian functions and values, such as physical and biological processes. And they have social values, such as aesthetics and the

pleasures of recreation. Many excellent sources describe these functions and values in detail.* These functions and values are briefly described below:⁸

- Wetlands possess aesthetic values, such as the sights and smells of an expanse of marsh, patterns of color, open water, and the variety of wildlife that bring interest to the landscape and create a sense of pleasure for the observer. They can offer opportunities for recreation, a retreat to urban dwellers, and as well as teaching and research opportunities.
- The biological and physical functions of wetlands are still being studied, although much is known. These physical functions include:
 - a) *Food Production.* Primary productivity of wetlands is measured by the amount of plant fiber and algae, which grow over an area of ground in a specified time. This productivity supports complex food webs involving microorganisms, insects, amphibians, reptiles, birds, fish, and mammals, including humans. Tidal and freshwaters marshes have higher annual rates of primary productivity than forests and many other terrestrial ecosystems.
 - b) *Wildlife Habitat.* Wetlands provide resting, nesting, and foraging grounds for migratory waterfowl and resident species of birds, mammals, amphibians, reptiles, and insects. Wetlands contain dense communities of invertebrates and insects, and are the nurseries for important commercial species such as salmon and dungeness crab. Many species have developed special adaptations to exist in the conditions of marshes, vernal pools, or riparian areas, and the loss of their particular habitat has jeopardized the continuance of many species.

As many as 43 percent of the nation's 900-plus endangered and threatened species depend on wetlands.⁹ In California, wetlands support 82 of the state's rare and endangered species, including 55 percent of the animal and 25 percent of the plant species designated as threatened or endangered.¹⁰ In the San Francisco Bay Estuary, wetlands and aquatic habitats support approximately 300 species of birds and mammals, 150 species of fish, 35 species of reptiles and amphibians, and an unknown number of invertebrate and plant species.¹¹
 - c) *Prevention of Erosion.* Wetland vegetation absorbs energy, thereby preventing erosion. This occurs in some coastal areas, but primarily along rivers and streams. In areas where coastal wetlands remain, wetlands reduce the force of tides and waves.
 - d) *Flood Protection.* Wetlands act like sponges, soaking up stormwater. The vegetation along streams and rivers, and submerged within the water bodies, is also effective in slowing the velocity of floodwaters.
 - e) *Water Purification.* The nature of wetlands and their saturated condition allows a number of physical, chemical, and biological transformations to take place. For

* For additional information about wetlands functions and values, see Mitsch & Gosselink, *Wetlands*, 1993, and National Research Council, *Wetlands Characteristics and Boundaries*, 1995. Additional information about California wetlands may be found online at CERES Wetlands Information System, California Resources Agency, <http://www.ceres.ca.gov/wetlands/>.

example, sediments and other material will settle out, and forces of adhesion can bind heavy metals, bacteria, hydrocarbons, and other constituents to the sediments. Microorganisms in shallow sediment will degrade and recycle organic compounds. Oxidation and photochemical reactions can help to remove pesticides. Marsh plants can remove pollutants directly by taking up nutrients and heavy metals and indirectly by creating the proper conditions for breakdown of pollutant compounds such as hydrocarbons and other organic materials.

- f) *Groundwater Recharge*. Groundwater recharge occurs in riparian areas and floodplains throughout California. In arid regions, streams entering a valley often disappear into coarse alluvial fans and percolate to groundwater aquifers. Springs may be the only evidence of the extent of desert groundwater resources. Similarly, in wet mountain meadows, melted snow can slowly percolate into subsurface soils and permeable rock fractures. In both cases, wetlands associated with points of discharge or recharge are connecting the surface and groundwater hydrologic regimes.

Activities that Destroy Wetlands

Conversion of wetlands to agricultural land or urban development, flood control projects, and water diversions are the general causes of most wetlands losses. Specific activities that destroy or greatly change the hydrology, soil, vegetation, or wildlife of wetlands include:¹²

- Pumping water or excavating ditches, which drains wetlands;
- Filling, which can severely disrupt or eliminate wetlands by raising bottom elevations;
- Excavating so that the resulting water level is too deep, changing a wetland to an open water area;
- Construction and management of dams, diversions, and levees, which can change the type of wetland or destroy it altogether by altering the period and frequency of inundation;
- Plowing too deeply or ripping through underlying claypan or hardpan in seasonal wetlands, which can cause them to drain;
- Mowing, plowing, burning, or otherwise removing plants and vegetation, which can degrade or destroy the function of wetlands as wildlife habitat; and
- Grazing, which can remove much of the vegetation and destroy the function of wetlands as habitat.

Activities conducted in locations away from wetlands can also affect or destroy hydrology, soils, vegetation, or wildlife. These indirect impacts include deposit of sediments from upslope erosion, flooding, shading, introduction of non-native species, and contamination by pesticides, herbicides, fertilizers, metals, oils, or other chemicals from mining, agricultural activities, urban development, or industrial waste.

WETLANDS IN CALIFORNIA

The variety of California's wetlands reflects the varying physiological and hydrological regimes within California's Mediterranean climate.¹³ Some, such as alpine meadows, vernal lakes, desert playas, and ephemeral streams, capture runoff from rainstorms or melting snow, which evaporates as the dry season progresses. As a result, many of California's wetlands are not wet for a good part of the year. During periods of drought or low rainfall, some wetlands may not have water at all. Nonetheless, they retain the soils and some plants characteristic of wetlands. Other California wetlands are similar to those found elsewhere in the country, such as estuarine or tidal wetlands, or freshwater marshes associated with rivers, lakes, and streams. Although various efforts have been made, there is no agreement within the biology community on how to classify California's wetlands. Yet, most agree that California's wetlands include unique forms that are not recognized in the Cowardin classification scheme used by the FWS.*

Some of California's wetlands types include:

- Large complexes of tidal and seasonal wetlands in San Francisco Bay, Humboldt Bay, and the Suisun Marsh.
- A string of smaller coastal wetlands within river mouths and estuaries, and a few major coastal wetlands such as Elkhorn Slough and Tijuana Estuary.
- Substantial numbers of vernal pools, primarily in the Central Valley but also found on coastal plains in Sonoma county, the Modoc Plateau, and southern California coastal areas.
- Seasonally flooded agricultural lands, such as rice fields in the Sacramento Valley, which provide foraging and habitat for waterfowl.
- Managed wetlands and agricultural lands ringing the many small lakes in the Klamath Basin region.
- Intermittently flooded lakebeds, or playas, occur in the desert basins of southeastern California. Rogers, Soda, Searles, China, and Rosamond Lakes are large playas.
- Small oasis-like washes and riparian woodlands dotting the Colorado and Mojave Deserts.
- Uncounted intermittent and ephemeral streams throughout the mountains and foothills. Because of the arid climate, these have flows of water only during winter and spring months. These streams often have riparian vegetation along some part of their course.
- Created wetlands for discharging treated wastewater have been developed by sanitation districts and other agencies. One of the largest such wetlands is the 400-

* A comprehensive summary of wetlands classification efforts in California may be found in Wayne Ferren, Peggy Fiedler, et al, *Wetlands of California: Part I – History of Wetland Habitat Classification*. Madrono, Vol. 43, Number 1, Supplement. January – March 1996. pp 105-124.

acre Piute Ponds at Edwards Air Force Base in the Mojave Desert. These 40-year old artificial wetlands are home to numerous migratory waterfowl.

Isolated Wetlands

Isolated wetlands are those that do not connect to a tributary stream of a lake, river, or estuary. The midwestern states' prairie potholes are examples of isolated wetlands – although they are extensive marshes, they are not part of a river system. Prairie potholes are habitat for millions of waterfowl during the annual winter and spring migrations. California's isolated wetlands are a unique result of the state's geography and climate. Because they are often dry for portions of the year, or for longer periods during droughts, they are particularly controversial. Although they contain wetlands plants and soils, they are often not recognized as wetlands during their dry phase. Isolated wetlands in California include ephemeral streams, swales, vernal lakes, vernal pools, desert seeps and springs, and dry lake beds.

Scientific studies have shown that all types of wetlands – isolated as well as adjacent – serve important ecological and economic functions. According to the National Research Council, many functions of isolated wetlands are not fully separated from surface waters, as many isolated wetlands have groundwater connections to surface waters. In fact, the National Research Council concluded that the scientific basis for attributing less importance to isolated than to other wetlands is weak.¹⁴

Isolated wetlands are very important for maintaining biodiversity. Some ephemeral streams, such as those found on the southern California coast, are known habitat for the endangered bells vireo and the yellow-billed cuckoo. Snow-melt ponds in the mountains and vernal pools provide habitat for sensitive species of toads, shrimp, and salamanders. Desert playas and springs support diverse populations of plants and animals that cannot survive in the harsh desert environment without those wetlands. Clearly, the destruction of isolated wetlands could cause a substantial loss of both rare species and irreplaceable habitat.

Vernal Pools

Vernal pools are ephemeral wetlands occurring in shallow depressions underlain by a layer of hard clay or mineral soil that restricts percolation. Rainwater fills these depressions during the rainy season, which gradually evaporate and dry out during the spring and early summer. Pools vary in size from a few square meters to several acres, and usually are located on semi-rolling grasslands, tucking in among "mima mounds" or hummocky topography. Larger, somewhat longer-lived pools are considered vernal lakes. In California, vernal pools formed tens of thousands of years ago on ancient alluvial soils of the Central Valley, on coastal terraces, and on basaltic lava flow on the Modoc plateau.¹⁵

Vernal pools may occur singly or in complexes. A complex is a set of naturally occurring pools in close proximity. Intervening non-pool terrain within a vernal pool complex is commonly referred to as "upland" and often includes wetland or partially wetland swales that can interconnect pools within the complex. Pools can usually be distinguished from the uplands by a distinct change in vegetation and soils characteristics.¹⁶



Vernal Pool, Thomas Creek Ecological Reserve, Tehama County. Photo courtesy of Carol Witham.

Vernal pools and swales result from an unusual combination of soil conditions, summer-dry Mediterranean climate, topography, and hydrology. The most striking characteristic of vernal pools is ponding during the late fall, winter, and spring, followed by complete dryness during the summer. As the water evaporates during the spring, beautiful concentric rings of wildflowers surround the pools. Water can enter a pool by rain and snow, inflow from a stream or channel, overland flow from adjacent uplands, or subsurface flow from adjacent upland. Water can leave a pool by evaporation, seepage through the pool bottom, or outflow through a channel.¹⁷



Vernal Pool, San Diego National Wildlife Refuge ("Teacup Parcel"). Photo by author.

Although shown during its dry phase, the characteristic rings of vegetation are evident in the vernal pool shown above. Closer examination reveals the hard clay soils and dried wetlands vegetation typical of San Diego County vernal pools.

As shown on Map 1, vernal pools are found primarily in the Central Valley, but are also found in the foothills and lowlands in the Transverse and Coast Ranges, coastal mesas, and the far northeast corner of the state on the Modoc Plateau.



Map 1: Vernal Pool Regions of California. Source: California Department of Fish and Game.

Vernal pools are a particularly important kind of isolated wetland in California. They contain a very large share of the State's "special status species" (all listed species as well as unlisted species that are rare and likely endangered) relative to the small total area of vernal pool habitat. There are 82 special status plants and animals and 40 officially listed (as threatened or endangered) plants and animals associated with vernal pools in California, according to the California Natural Diversity Database (CNDDB, a program run by the Department of Fish and Game). These include various species of fairy shrimp, Otay tar plant, the California tiger salamander, western spadefoot toad, Hoover's button-celery, Butte County meadowfoam, San Diego mesa mint, and Sacramento orcutt grass. Some species can be found only in single pools, and nowhere else in the state. Migratory waterfowl, such as avocet, greater yellowlegs, cinnamon teal, and mallard also frequent vernal pools.



Vernal Pool, Mt. Pinos, Cerro Nordeste Road, N.W., Ventura County. Photo courtesy of John Game.

The pool shown above contains *downingia bella*, a flowering plant commonly found in vernal pools throughout the state. Several subspecies of *downingia* are on the CNDDB. Cuyamaca Lake *downingia* is a state endangered species, while the dwarf *downingia* is rare although not a listed species.

According to the DFG, vernal pools and swales are thought to be among the most threatened wetland ecosystems in California. Vernal pools are vulnerable to destruction because they often occur on flat, easily developed, easily accessible land. Some estimates place vernal pool losses in California at more than 90 percent.¹⁸ Agriculture, urbanization, and grazing are the greatest threats, although alterations of hydrology, brush-clearing, and off-road vehicles also have an impact.

Many of the plants and animals supported by the pools are endemic species, indigenous to California vernal pools and adapted to the Mediterranean climate. Additional native plant and animal species associated with these wetlands are not strictly vernal pool endemics, but are usually or often found in vernal pools.¹⁹

Because vernal pools possess a relatively high percentage of native species, they are important for maintaining California's biodiversity. Most of California's grasslands now contain mostly non-native Mediterranean grasses, but these grasses generally cannot tolerate the conditions of vernal pools. As a result, vernal pools support a much higher percentage of native plant species than do the surrounding uplands.²⁰ In addition, the pools play a valuable role in the food chain for a wide variety of animals, including birds of prey, migratory waterfowl, shorebirds, frogs, toads, salamanders, and pollinating insects.

California's vernal pools have been studied extensively. The U.S. FWS and California DFG have funded several efforts to study vernal pools, inventory remaining pools, and document their losses. These include studies of vernal pools in the San Joaquin Valley and Beale Air Force Base in Yuba County, as well as inventories of San Diego County vernal pools performed in 1978 and 1986.²¹ The DFG also prepared a statewide report on vernal pools, describing the status of all the vernal pool regions noted on Map 1. The report categorized the viability of each region's vernal pools (high, medium, or low). It also categorized the restoration opportunities, amount of protected areas, and number of sensitive plant and animal species.²²

Some of DFG's findings about Central Valley vernal pools are as follows:

- Estimates of the historical extent of Central Valley vernal pools range from approximately two million acres to four million acres;
- Based on current information about vernal pool habitats, approximately one million acres of Central Valley agricultural lands contain large vernal pool complexes (vernal pool complexes include the pools themselves, as well as surrounding swales and uplands); and
- Approximately 58,200 acres of these, or six percent, are publicly owned – the remaining 94 percent is privately owned.

Proportionally greater losses have occurred in the San Diego region, as documented by the 1978 and 1986 inventories of vernal pools in San Diego County:

- Regional vernal pool habitat declined from about 28,595 acres prior to 1850 to 2,692 acres as of July 1, 1978, a loss of 90 percent;
- During the 1978 study, an additional 198 acres of vernal pools were lost, a seven percent loss during a nine-month period;
- In 1979, there were an estimated 3,699 vernal pools in San Diego County, of which 838 (23 percent) were lost by June 1986;
- Between 1979 and 1990, it was estimated that a total of 1,170 vernal pools, or 32 percent, would be lost.

WETLANDS LOSSES IN CALIFORNIA

The state of California covers approximately 101,000,000 acres. Before large-scale conversion of wetlands to agriculture and urban development, there were about five million acres of wetlands (about five percent of the total land area). Of these, approximately four million were in the Central Valley. The wetlands provided habitat for thriving populations of fish and wildlife, and Native Americans relied on them for food, clothing, transportation, and protection. Now, roughly 450,000 acres of non-agricultural wetlands* remain statewide.²³ California has lost 91 percent of its wetlands – the highest percentage loss in the country.²⁴ Only Iowa, Illinois, Indiana, Missouri, and Ohio have wetlands losses of 85 percent or more.

California's unique hydrology and topography created a vast complex of natural wetlands in a semi-arid state that has an average annual rainfall of 20 inches.²⁵ In the years before flood-control and irrigation projects altered the natural hydrology of the state, streams flowing into the Central Valley had wide flood plains. The rivers and streams were lined with riparian and wetland areas, with abundant willow, sycamore, oak, and other trees. Frequent flooding created tens of thousands acres of marsh and hundreds of thousands of vernal pools. Shallow groundwater tables supported the marshes during the dry season. As a result of agricultural drainage, federal and state water projects, groundwater withdrawal, dams, and flood control projects, the original vast extent of wetlands no longer exists.²⁶

The Central Valley and Sacramento-San Joaquin Delta became an important agricultural center, but at the expense of 91 percent of the Valley's original wetlands. According to the U.S. Fish and Wildlife Service, prior to the 1850s, thick riparian forests contoured the varying edges of the Sacramento, Feather, American, Cosumnes, Mokelumne, Merced, San Joaquin, Kings, Kaweah, and Kern Rivers, and many other smaller streams. Of the four million acres of wetlands in the Valley, an estimated 32 percent were riparian forests, while another 62 percent was made up of freshwater marshes or "tules," shallow lakes, wet prairies, and vernal pools found on the valley floor.²⁷

In 1860, the Sacramento-San Joaquin Delta supported approximately 350,000 acres of freshwater marsh cut by rivers and sloughs. Enormous flocks of ducks and geese descended on the Delta marshes in winter, and tule elk were once abundant there and in the surrounding perennial grasslands.²⁸

The southern San Joaquin Valley is a basin without a natural drainage, where the Kern, Kaweah, and Kings Rivers once fed huge tule marshes and lakes. Tulare Lake was the largest of these shallow inland lakes, estimated to have been 280,000 acres.²⁹ Buena Vista and Kern Lakes were filled by melted snow from the Sierra Nevada mountains. Early observers reported large numbers of swans, geese, and ducks between October and April,

* Agricultural wetlands are those found on agricultural lands, which are in turn those lands intensively used and managed for food and fiber production, and from which natural vegetation has been removed. (National Research Council, *Wetlands: Characteristics and Values*, p. 158) In California, rice fields are farmed wetlands, as are some cropland, hayland, and pasture.

along with wintering sandhill cranes and breeding white pelicans, while beaver, mink, and river otter were abundant in Tulare Lake and its tributary streams.³⁰

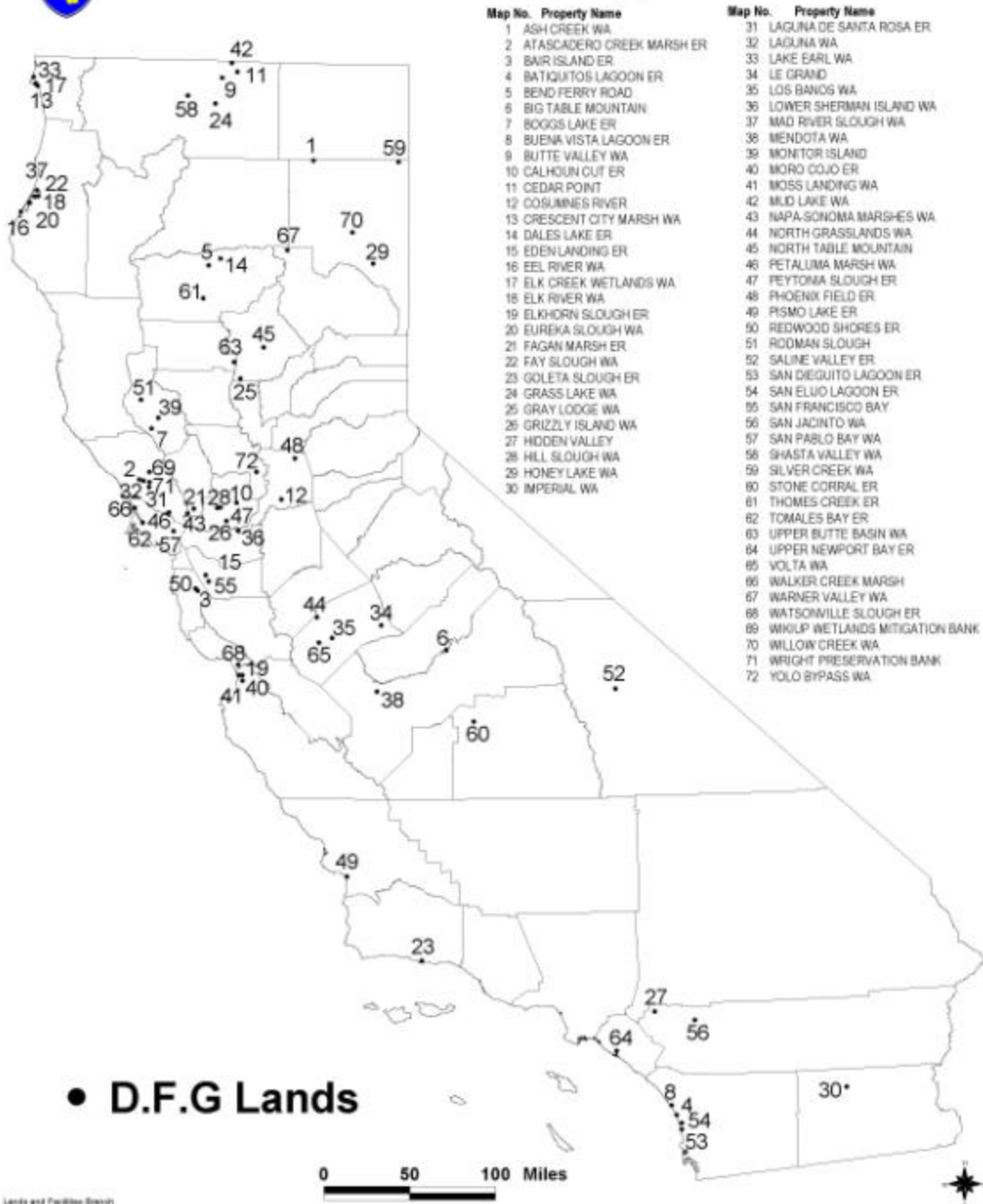
Today, flood control and reclamation projects have converted the Central Valley into a vast agricultural complex. Water that once flowed onto the Valley floor is now diverted for irrigation, hydroelectric power, as well as municipal and industrial water supplies. By World War II, 85 percent of the Central Valley's wetlands were gone. The Tulare Lake basin was drained, leaving only remnant wetlands in scattered patches. Buena Vista and Kern Lakes were completely dried up. An additional loss of 250,200 acres occurred between the 1930s and the mid-1980s. By the mid-1980s, only 378,800 acres (nine percent) of the Central Valley's wetlands remained.³¹

Most of the wetlands remaining in the Central Valley are managed wetlands. These are created and maintained by seasonal or controlled application of water. In addition to the privately-owned duck clubs, the U.S. Fish and Wildlife Service and the California Department of Fish and Game operate extensive complexes of wetlands throughout the state, mainly for waterfowl habitat. DFG operates 72 managed wetlands areas, while the U.S. Fish and Wildlife manages 22 refuges.

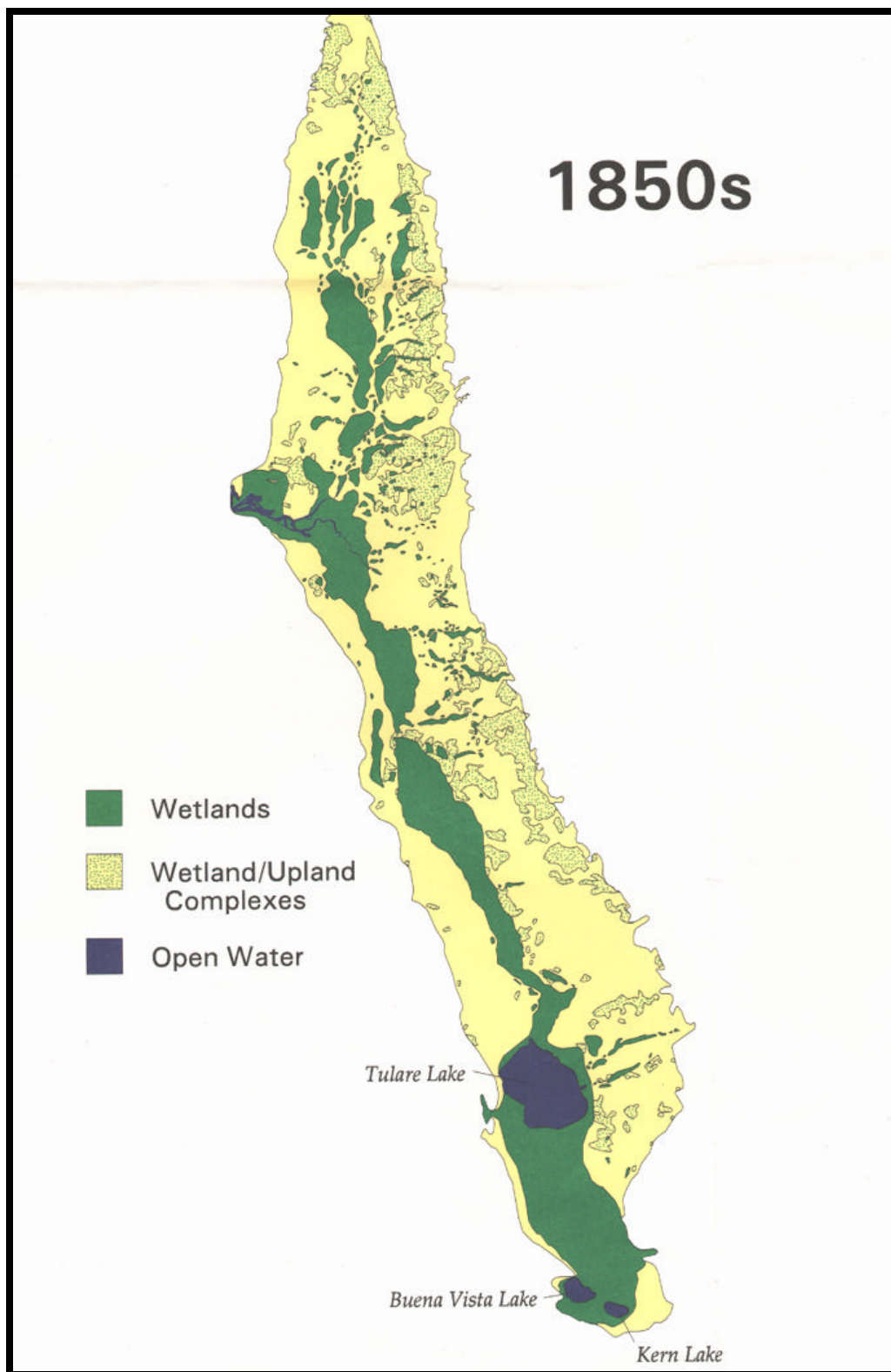
Maps 2 through 5 display the DFG managed wetlands, a comparison of the extent of the Central Valley's wetlands in the 1850s and as they appear now, and the U.S. FWS wildlife refuges.



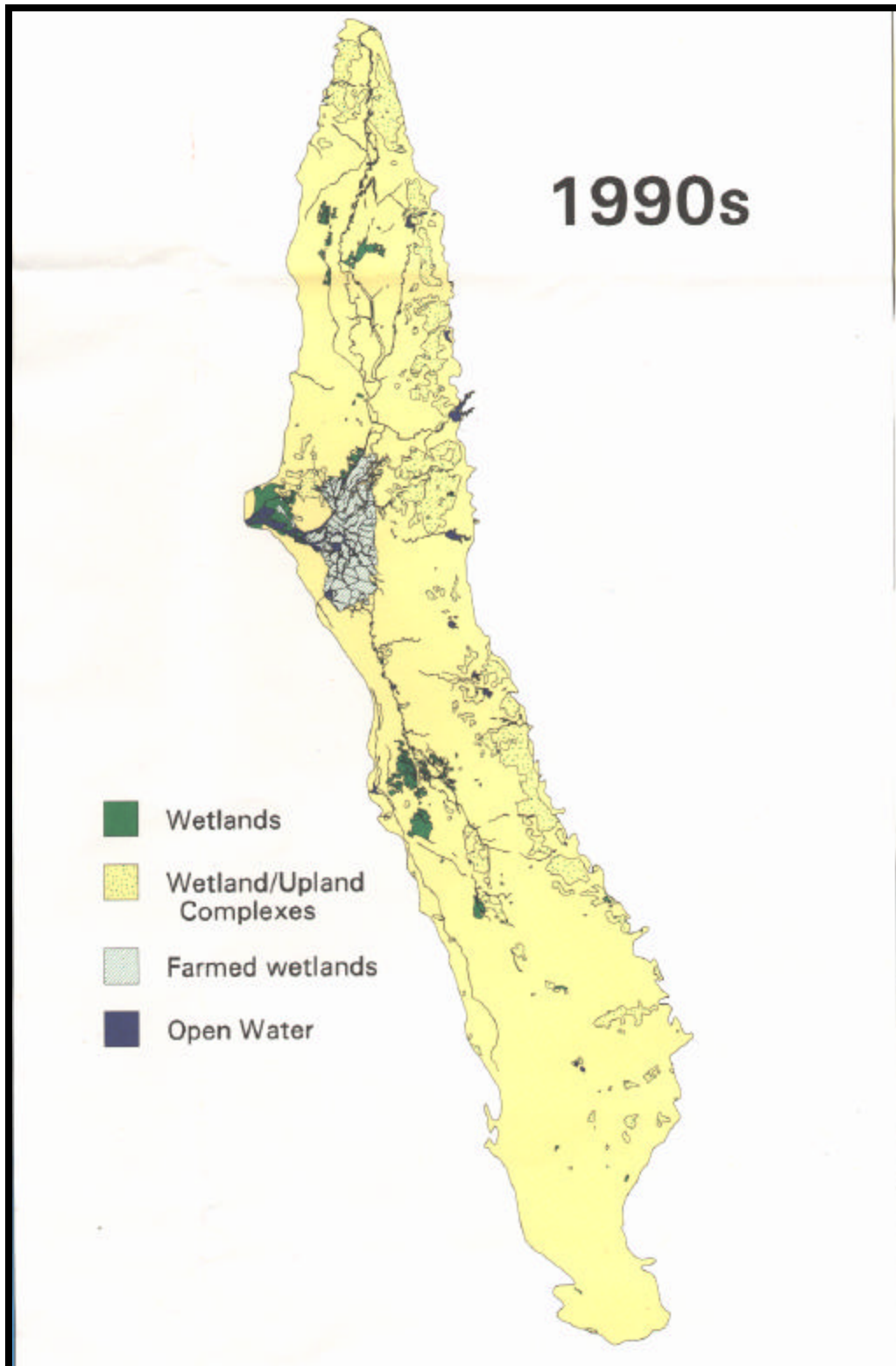
Fish and Game Managed Wetlands



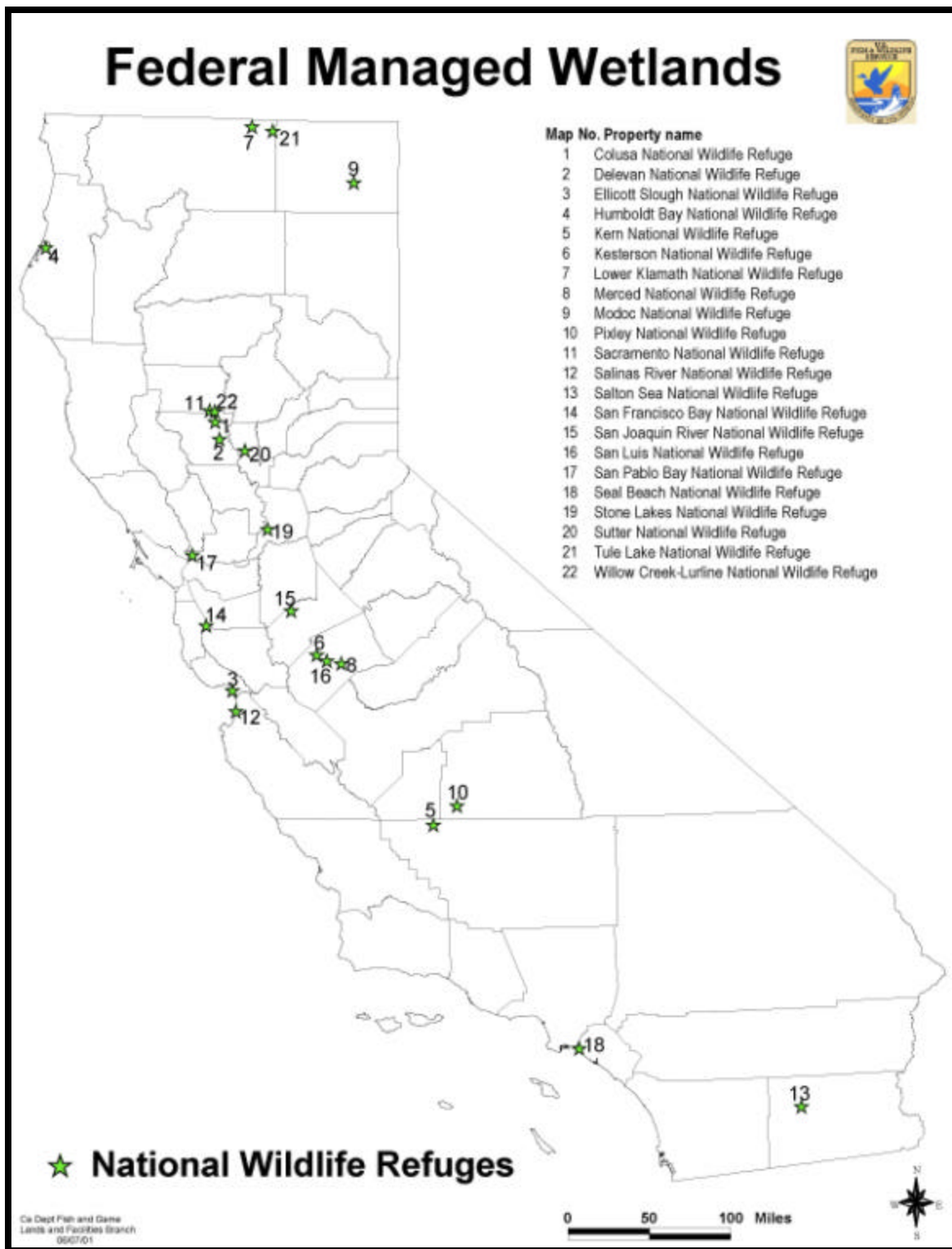
Map 2: DFG Managed Wetlands. Source: California Department of Fish and Game, Lands and Facilities Branch.



Map 3: Wetlands in the Central Valley 1850. Source: US Fish and Wildlife Service.



Map 4: Central Valley Wetlands 1990s. Source: US Fish and Wildlife Service



Map 5: US Fish and Wildlife Service Managed Wetlands. Source: California Department of Fish and Game, Lands and Facilities Branch

These overwhelming changes created agricultural lands that have allowed the state to flourish. However, as a result of the loss of wetlands and upland habitat, populations of many wildlife species in the Central Valley have dwindled. Many species of waterfowl and other birds, such as bald eagles,^{*} the greater sandhill crane, yellow-billed cuckoo, and Swainson's hawk, are now endangered or threatened. Large mammals, such as tule elk, pronghorn antelope, and mule deer, are no longer found in their native habitats in the Central Valley.³²

Although greatly reduced from its original extent, the wetlands of the Central Valley are still vitally important to wildlife. The Sacramento-San Joaquin Delta is the largest remaining wetland area in the state. It harbors as much as 15 percent of the waterfowl on the Pacific Flyway, the bird-migration corridor extending from the southern tip of South America to Alaska. About one-third of the Pacific Flyway's waterfowl population winters in the Sacramento Valley, with three million ducks and 750,000 geese migrating to the Valley each year.

Similar extensive change has occurred in the north coast, the San Francisco Bay Estuary, and the south coast. Before 1850, the San Francisco Bay Estuary contained about 545,000 acres of tidal marsh.³³ Now, about 44,400 acres of tidal marsh, 471,000 acres of diked seasonal wetlands, and 36,600 acres of salt ponds remain in the Estuary.³⁴ The flocks of wintering waterfowl on these remaining wetlands are but a fraction of the number this area once supported.[†] In southern California, remaining coastal salt marsh habitat is estimated to be about 16,800 acres, or between 10 and 25 percent of its historic extent. San Diego Bay marshlands have declined from an estimated 2,400 acres to 350 acres. Humboldt Bay is estimated to have less than nine percent, or about 600 acres, of an original 6,800 acres of salt marsh.³⁵

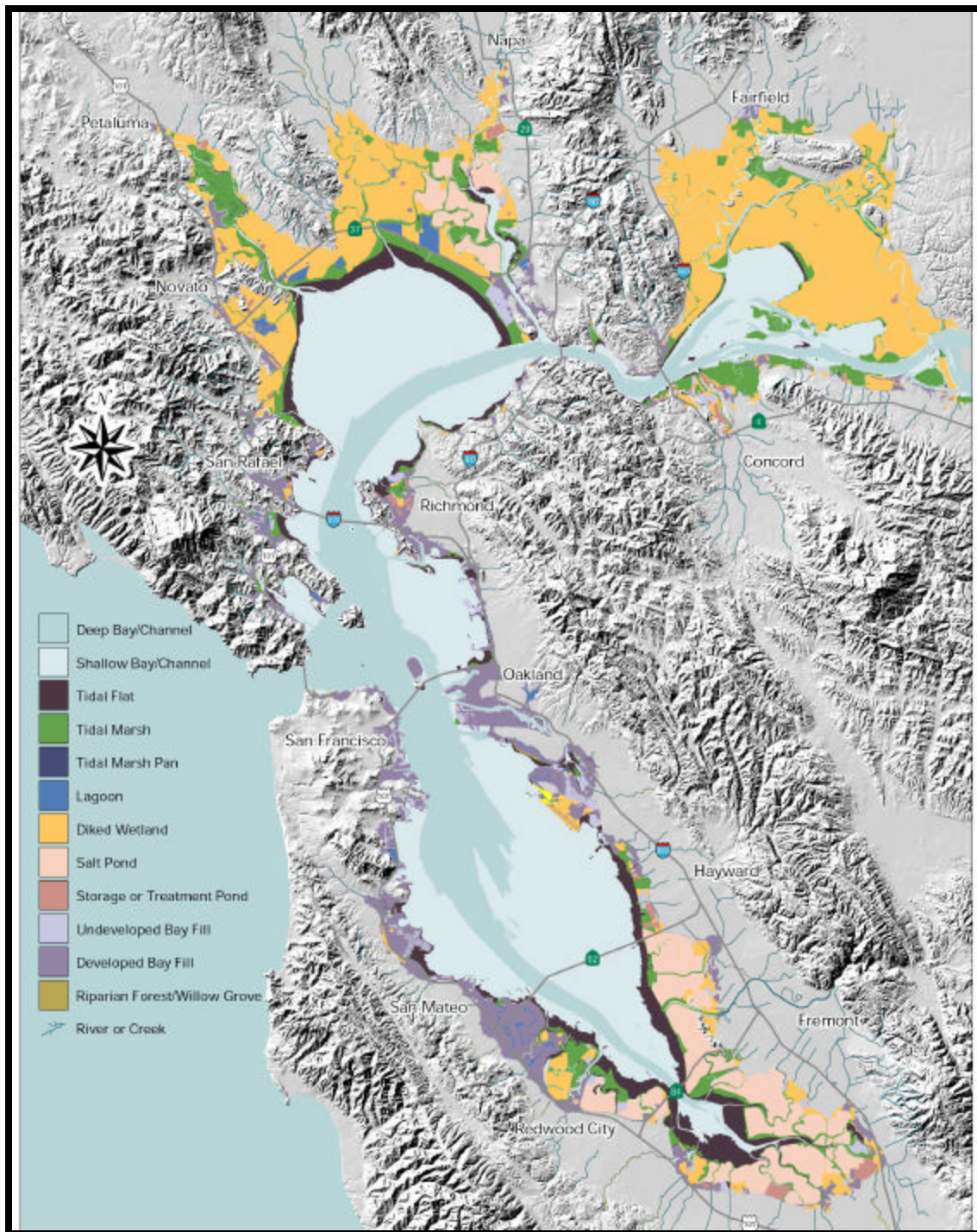
Growth and development continue to place pressure on California's wetlands. The State's population is expected to increase from roughly 34 million to 50 million or more by 2040. Most of that growth will be in coastal areas and the Central Valley. California's Department of Finance expects the growth rate of the Central Valley to exceed coastal areas by 20 to 25 percent, with the Central Valley increasing from just over five million people in 1998 to more than 15 million by 2040. One study estimated that Fresno, Sacramento, and Yolo counties might see as much as 20 percent of prime agricultural land converted to urban uses, while other counties in the Valley might have a conversion rate of 12 percent.³⁶ Population growth will place heavy pressure on the remaining coastal and freshwater wetlands and their watershed lands, as more area is converted from open space to developed space. The remaining Central Valley wetlands and riparian

^{*} The bald eagle was listed as endangered by the U.S. Fish and Wildlife Service in 1967. Substantial recovery of the population of bald eagles prompted the Fish and Wildlife Service to propose delisting it in July 1999.

[†] The San Francisco Estuary Project has developed extensive maps and information about the historic and current extent of wetlands in the Estuary, known as the "EcoAtlas." The San Francisco Bay Area Wetlands Ecosystem Goals Project has prepared a "blueprint" for wetlands restoration throughout the Estuary, called "Baylands Ecosystem Habitat Goals." The EcoAtlas and information from the Habitat Goals project can be found on the San Francisco Estuary Institute's web site: www.sfei.org.



Map 6: Historic Extent of San Francisco Bay Estuary. Source: Bay Area Eco Atlas, SFEI, 2000.



Map 7: Current Extent of San Francisco Bay Estuary. Source: Bay Area EcoAtlas, SFEI, 2000.

zones will come under increasing pressure as agricultural lands are converted to urban uses.

Agricultural conversion continues to place pressure on wetlands. In both the Sacramento Valley and the San Joaquin Valley, large tracts of private duck clubs were converted to agriculture. For example, of 17,000 acres of modified natural wetlands in the Butte Sink, 7,000 were converted to rice between 1974 and 1984.³⁷ High energy and water costs, and fewer ducks, prompted some duck clubs to convert part of their lands to rice. Recently, there have been efforts to allow wetlands and agriculture to coexist. Some rice growers have been flooding their fields in winter to provide habitat for migrating waterfowl. Rice provides a source of revenue, as well as winter habitat for ducks and other waterfowl. As a result of the California Rice Straw Burning Reduction Act of 1992, many farm owners and managers have turned to winter flooding of rice fields to assist in decomposing the rice straw. This winter flooding creates a source of winter habitat for millions of migratory birds and other wetland-dependent species. Forty-six species of waterfowl have been recorded on flooded rice fields in the Central Valley in winter. A cooperative program of Ducks Unlimited, the California Wildlife Conservation Board, rice growers, farm bureaus, and other groups has grown from 50 growers and 200 flooded acres of rice fields to more than 200 growers and 140,000 flooded acres of rice fields.^{38 *}

Inadequate supplies of water and high energy costs also put pressure on managed wetlands. The majority of the remaining 378,800 acres of wetlands in the Central Valley are privately-owned managed wetlands, created and maintained by controlled or seasonal application of water.³⁹ Managed wetlands depend on a regular flooding regime to produce wetland vegetation and suitable forage for migratory waterfowl. Most of the managed wetlands are owned by duck clubs, who must purchase water from irrigation districts or pump groundwater to provide adequate flooding of the wetlands. Very few wetlands have the natural hydrology that once sustained them, and with one exception, the duck clubs do not have secure water supplies. Only the Grasslands Resource Conservation District has an assured water supply.

The cost of water is becoming prohibitive for duck clubs. For example, in the Tulare basin, the remaining wetlands rely completely on groundwater, which is pumped from depths of 600 to 800 feet. With the recent increases in energy costs, some duck clubs can no longer afford to run the powerful pumps necessary to bring groundwater up from such

* In the Central Valley, significant efforts are underway to protect, restore, and enhance the remaining wetlands. The Central Valley Habitat Joint Venture adopted goals of protecting 80,000 acres of wetlands through acquisition or conservation easement, restoring 120,000 acres of former wetlands, and enhancing 291,555 acres of existing wetlands. The USFWS has prepared a report describing how these goals can be achieved, entitled "Central Valley Wetlands Water Supply Investigations." The report identifies potential sources of water for the restored wetlands and was released on January 2, 2002.

Joint Ventures, in which government agencies and private organizations pool resources to address habitat needs, are the means of implementing the 1986 North American Waterfowl Management Plan. The Plan was signed by the United States and Canada, and was updated in 1996, when Mexico became a signatory. There are four joint ventures in California: the Central Valley Habitat Joint Venture, the San Francisco Bay Joint Venture, the Pacific Coast Joint Venture (for northern California), and the Intermountain West Joint Venture, encompassing parts of Canada, Mexico, and all or part of 11 western states, including eastern California. A fifth joint venture for southern California is being considered.

depths. Without a regular flooding regime, managed wetlands will dry out, and will not provide suitable waterfowl habitat. In addition, the wetland vegetation will be succeeded by upland vegetation. At that point, the land would be far more valuable as a housing tract or in agricultural production.*

Water supplies for federal wildlife refuges are threatened throughout the western states. Many refuges have insecure legal rights to use the available water.⁴⁰ Recent droughts and growing competition with agricultural, industrial, and urban users, and even wildlife, jeopardize important refuges. A dramatic example of these conflicts occurred in the spring of 2001, when the Bureau of Reclamation halted water deliveries from the Klamath Reclamation Project to local farmers and also to the Klamath National Wildlife Refuge Complex in order to meet the needs of three threatened and endangered fish species, including coho salmon.[†]

* The SWANCC decision may have removed these wetlands from the jurisdiction of the Corps of Engineers. Thus, there will likely be no federal prohibition on filling these wetlands for other uses. This is discussed further in the Chapter describing the potential impacts of SWANCC in California.

† The Bureau's decision, based on biological opinions from the FWS and National Marine Fisheries Service, will affect almost 1,200 area farmers and several national wildlife refuges. The Klamath Basin is one of the most critical waterfowl staging areas in North America. Each year, nearly three-quarters of all Pacific Flyway waterfowl stop over at the Basin, with a peak population of more than two million ducks, geese, and swans. The Basin supports more than 430 documented species of wildlife, as well as the largest winter concentration of bald eagles in the conterminous United States. Without the water, the arid, high desert basin will dry up, with dire consequences for agriculture and wildlife.

Chapter Two: Federal Regulation of Wetlands

The Corps' program under Section 404 of the Clean Water Act is the dominant regulatory force in wetlands. Even in states that have adopted wetlands regulatory programs, they mainly have augmented the Corps' program.

Under Section 404, landowners and developers must obtain a permit for the discharge of fill material into the "waters of the United States," which include wetlands. Over the years, litigation over the proper extent of the Corps' authority under Section 404 has produced a body of case law interpreting the Clean Water Act. Chief among the issues addressed by the courts have been the definitions of "waters of the United States" and "navigable waters," the proper application of the Commerce Clause of the U.S. Constitution, and the regulation of wetlands adjacent to navigable waters and isolated wetlands.

The Constitution's division of power between the federal government and the states restricts federal regulation of intrastate activities to those things that affect interstate commerce. When the Constitution was written, there was no concept of national environmental problems such as habitat loss, water and air pollution, or endangered species. Thus, federal regulation of wetlands is based on a complex line of legal reasoning that connects wetlands to "navigable waters." Regulation of wetlands has been a sizeable element of the federal effort to protect the biological integrity of the nation's waters, a specified goal of the Clean Water Act, but the term "wetlands" is not used in the Act. Prior to the SWANCC decision, judicial review had determined that Congress intended that the Clean Water Act apply to virtually all wetlands and non-navigable, isolated, intrastate waters.

This chapter reviews the mandates of the Clean Water Act and the expansion of federal jurisdiction to encompass isolated, intrastate waters. It describes the "pre-SWANCC" federal regulation of wetlands under the Section 404 program, and the effectiveness of the program. The chapter also summarizes the effect of the 404 program in California, including the number of permits issued and the types of wetlands subject to regulation.

FROM NAVIGABLE WATERS TO WETLANDS

In the 110 years of the Corps' existence, it has evolved into a large bureaucracy that has many responsibilities, including overseeing federal regulation of wetlands. At the same time, the Corps is responsible for military engineering, building dams and channels to control flooding, as well as maintaining the nation's commercial waterways. In fulfilling the latter, the Corps has manipulated many of the main rivers and estuaries in the United States, thereby altering their watersheds and diminishing their wetlands. This section describes the federal laws and case law that have created these conflicting mandates. It also reviews the key regulatory concepts that guide the Corps' exercise of its authority over wetlands.

The Rivers and Harbors Act

In the 19th century, the federal government was concerned with eradicating wetlands, rather than protecting them. Viewed as swamps and nuisances that were unsuitable for agriculture, the federal government provided many incentives to drain and fill these areas. The Swamp Lands Acts of 1849, 1850, and 1860 were instrumental in “reclaiming” wetlands for agriculture and urban development.

The Army Corps of Engineers was originally created in 1775 to build fortifications near Boston, Massachusetts, on Bunker Hill. In 1802, a corps of engineers was stationed at West Point, becoming the nation’s first military academy. In the 1890 Rivers and Harbors Act, Congress gave the Corps its first regulatory role. It was the Corps’ job to oversee all construction in the navigable waterways that were the mainstays of the nation’s transportation system and commerce. This law was prompted by the federal government’s need to prevent states from constructing obstructions (such as dams or bridges) to navigation.⁴¹ In 1899, Congress revised the Rivers and Harbors Act to give the Corps the authority to protect commerce in navigable streams and waterways.⁴² Under this authority, permits are required from the Corps to construct a dike or dam in navigable waters, to place piers or to dredge and fill in such waters, and to discharge any refuse matter into the navigable waters of the United States.⁴³ Thus, the Corps’ role was to maintain and protect navigable waterways and thereby to further interstate commerce.

The Corps’ emphasis began to change in the late 1960s, after Congress passed the Fish and Wildlife Coordination Act.⁴⁴ This act required federal agencies involved in the alteration of a body of water to consult with the U.S. Fish and Wildlife Service (FWS) so as to conserve wildlife resources.⁴⁵ In 1968, the Corps changed its regulations to require a “public interest” review of its proposed activities, in which it considered not only navigational effects, but also ecological effects. The courts in 1970 upheld the Corps’ first public interest review standard when it denied a permit for the fill of 11 acres of submerged land in Florida.⁴⁶

Up to this point, the Corps’ primary concern was altering nature to suit the needs of humans, by draining swamps, controlling floods by building levees, and building piers and bridges. With its new responsibilities for protecting the environment, the Corps found itself in a somewhat awkward position.* However, this was only the beginning of the evolution of the Corps’ schizophrenic existence.

The Clean Water Act Expands the Corps’ Jurisdiction Over Wetlands

National concern about increasingly polluted waters resulted in the federal Water Pollution Control Act of 1972, also known as the Clean Water Act.⁴⁷ The purpose of the Act is to “restore and maintain the chemical, physical, and biological integrity of the nation’s waters.”⁴⁸ Another goal of the Act is to “achieve a level of water quality that serves to protect and encourage the propagation of fish and wildlife.”⁴⁹

* One observer noted the irony of placing the Corps, described as “the world’s largest civil engineering organization, ...a significant despoiler of the environment,” in charge of protecting wetlands. (William L. Want, *op. cit.*, p. 2-9, footnote 6.)

Congress assigned the responsibility for carrying out the Clean Water Act to two federal agencies: the U.S. Environmental Protection Agency (EPA) and the Corps. The principal regulatory program of the Clean Water Act is the National Pollution Discharge Elimination System (NPDES), which is administered by the EPA. The Clean Water Act prohibits the discharge of any pollutant into the “navigable waters” without an NPDES permit. However, Section 404 of the Act allots to the Corps the responsibility for issuing permits for discharging material into the waters of the United States, including wetlands. The legislative history of the Clean Water Act explains that the Corps received this authority for two reasons.⁵⁰ First, it already administered the wetlands regulatory program of the Rivers and Harbors Act, of which the Clean Water Act was to be an expansion. Second, the Corps did not want its own extensive dredging and filling activities to be regulated by any other agency.

Court decisions have regularly found that Congress intended the Corps to regulate wetlands under the Clean Water Act,^{*} although the statute does not use the term “wetlands” to define the Corps’ regulatory jurisdiction. The area subject to regulation is “navigable waters,” which is unhelpfully defined in the Clean Water Act as “waters of the United States.”⁵¹ Disagreements over what wetlands should be regulated, and the extent of the Corps’ authority, have produced a body of case law on Section 404 jurisdiction. Although the SWANCC decision appears to signal a new direction, previous court decisions initially forced a resistant Corps to expand its jurisdiction, then later supported the Corps as its expanded authority was challenged.

To regulate the nation’s wetlands, the Corps’ jurisdiction expanded from covering the historical “navigable waterways” to include waters and wetlands that have only a subtle connection to navigation, at most. This expansion required that the Corps demonstrate a relationship between regulated wetlands and interstate commerce.

Nexus Between Regulating Wetlands and Interstate Commerce

The Clean Water Act, like many other environmental protection statutes, derives its authority from the Commerce Clause of the U.S. Constitution. Under the Commerce Clause, Congress may regulate “...commerce with foreign Nations, and among the several States, and with the Indian Tribes.”⁵² Since the 1930s, the Supreme Court has broadly interpreted this “Commerce Clause authority.”⁵³ The breadth of Congress’ Commerce Clause authority can be seen in Supreme Court decisions upholding federal regulation of activities that have only indirect effects on interstate commerce, of isolated activities that only affect interstate commerce when considered collectively, and of local activities that affect only one state.⁵⁴

The Corps’ definition of “waters of the United States” relies on the relationship of waters to interstate commerce. Until 1995,[†] the courts have interpreted the Commerce Clause to

^{*} Review of the Congressional Record by the Supreme Court and Circuit Courts have led to this conclusion. See for example *NRDC v. Callaway*, *U.S. v. Holland*, and *U.S. v. Riverside Bayview Homes*.

[†] In *United States v. Lopez*, (115 S. Ct. 1624, 1995) the Supreme Court determined in a 5-4 decision that the federally regulated activity must be a commercial activity that substantially affects interstate commerce. The SWANCC decision is the first application of this new commerce clause standard to environmental regulation.

allow federal regulation of intrastate activity as long as the activity is part of a class of activities that has a “substantial effect on interstate commerce.” As its regulations evolved, the Corps has come to define the waters of the United States to include almost all natural water bodies, including wetlands when their “use, degradation, or destruction could affect interstate or foreign commerce.”⁵⁵ This approach extended the Corps’ regulatory authority to wetlands, even though Section 404 of the Clean Water Act does not use the word “wetlands.”

This expansive interpretation of Section 404 jurisdiction has been upheld by the Supreme Court. In *United States v. Holland*,⁵⁶ the Court concluded that the Clean Water Act extended federal jurisdiction to all waters that might affect commerce, without regard to traditional navigability. The court held that tidelands are considered “waters of the United States,” and should be regulated under the Clean Water Act even though the discharge in question was beyond the mean high water mark and therefore beyond traditional navigable waters. As a result, virtually any area that meets the Corps’ scientific criteria for a wetland (discussed below) has been within the Corps’ regulatory jurisdiction.

Defining Jurisdictional Limits of Waters of the United States

Section 404 authorizes the Corps to require that people obtain permits from it before they discharge dredged or fill material into the *navigable waters* of the United States. Section 502 of the Clean Water Act defines the navigable waters to be “the *waters of the United States*, including the territorial seas.” The chief issue in determining the extent of the Corps’ 404 authority is defining the limits of “waters of the United States.”

After the Clean Water Act was passed, the Corps did not interpret the phrase “waters of the United States” to expand its wetlands jurisdiction. However, the EPA, Justice Department, and several federal courts disagreed. This dispute was resolved in *NRDC v. Callaway*, in which the U.S. District Court ruled that the Clean Water Act required the Corps to amend its regulations to provide expanded coverage of wetlands.⁵⁷ The Corps eventually did so in three phases: Phase I included all waters subject to the ebb and flow of the tides and/or waters susceptible to use in commercial navigation; Phase II included all primary tributaries to the Phase I waters and lakes greater than five acres in surface area, plus all wetlands adjacent to these waters; Phase III included all other waters of the United States. Phase III became effective on July 1, 1977.

Since Phase III took effect, there has been a continual battle over the Corps’ jurisdiction and national wetlands policy. Some of the highlights are noted below:*

- Opponents of expanded Corps jurisdiction tried to restrict it through legislation. In 1976 and 1977, the House of Representatives passed a bill limiting the Corps’ jurisdiction to traditional navigable waters and adjacent wetlands. The bills failed in the Senate, although exemptions from regulation for certain farming, forestry, and ranching activities passed.

* For a more complete description of the many memoranda and court cases that produced the Corp’s current jurisdiction, see William L. Want, *Law of Wetlands Regulation*, pp. 2-11 to 2-20.

- In 1985, the issue of “adjacent” wetlands reached the Supreme Court. In *U.S. v. Riverside Bayview Homes*, the Court upheld a broad interpretation of the Corps jurisdiction that included areas saturated by groundwater in addition to those saturated by surface water. The court noted in that decision that it was not deciding whether the Corps had jurisdiction over *isolated* wetlands.*
- In 1988, the National Wetlands Policy Forum brought together industry representatives and environmentalists, who endorsed a policy of “no net loss” of wetlands. President Bush strongly endorsed this policy in his 1988 presidential campaign.
- In August 1991, the Bush administration proposed sweeping changes to the way in which federal agencies identified wetlands. The administration stated that a revision of the wetlands delineation manual, proposed in 1989, would greatly expand the scope of protected wetlands to areas that were only modestly wet. The administration’s proposed changes generated more than 50,000 written comments, and were not implemented at the end of the public comment period. The 1991 Energy and Water Development Appropriations Act, which funds the Corps, included a provision prohibiting the Corps from using the manual proposed in 1989.
- In August 1993, the Clinton Administration announced several wetlands policies, including “no net loss” of wetlands, regulations concerning excavations in wetlands, and guidance on establishing wetlands mitigation banks. It also made the Soil Conservation Service, in the Department of Agriculture, responsible for wetlands jurisdictional determinations on agriculture lands under both the Clean Water Act and the “Swampbuster”† program (the Food Security Act). The administration also excluded “prior converted croplands” from regulation. This exemption excluded from regulation vast tracts of wetlands that had been drained and converted to agricultural use prior to 1985.
- In 1997, the Fourth Circuit handed down a decision invalidating several components of the Corps’ regulatory program. In *U.S. v. Wilson*,⁵⁸ the court reversed the criminal conviction, jail sentence, and heavy fines imposed by a jury on a real estate developer and two real estate companies. The wetlands in question were more than six miles from the Potomac River and hundreds of yards from the nearest creeks. The court determined that the district court was in error in instructing the jury that the Clean Water Act regulates adjacent wetlands without a surface connection to navigable or interstate waters. The court also ruled that sidecasting (depositing material dredged in digging a ditch in wetlands to the side) does not violate the Clean Water Act because it is not an “addition of pollutants.”⁵⁹ (The Corps has limited the application of this ruling to the Fourth

* Isolated waters are defined at 33 CFR 330.2(e) as wetlands that are not part of, or adjacent to, the surface tributary system.

† Swampbuster is a disincentive program that indirectly protects wetlands by making farmers who drain wetlands ineligible for federal farm program benefits.

Circuit, which includes Maryland, North Carolina, South Carolina, Virginia, and West Virginia.)

- In 1998, the Clinton Administration released the Clean Water Action Plan. It included a goal of a net increase of 100,000 acres of wetlands annually by 2005.

According to the Corps' current regulations, the "waters of the United States" consist of seven categories of waters:⁶⁰

- (1) All waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;*
- (2) All interstate waters including interstate wetlands;*
- (3) All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation or destruction of which could affect interstate or foreign commerce including any such waters:*
 - a) Which are or could be used by interstate or foreign travelers for recreational or other purposes; or*
 - b) From which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or*
 - c) Which are used or could be used for industrial purposes by industries in interstate commerce;*
- 4) All impoundments of waters otherwise defined as waters of the United States under the definition;*
- 5) Tributaries of waters identified in paragraphs (1) through (4) of this section;*
- 6) The territorial seas; and*
- 7) Wetlands adjacent to waters (other than waters that are themselves wetlands) identified in paragraphs (1) through (6) of this section.*

Waste treatment systems, including treatment ponds or lagoons designed to meet the requirements of the Clean Water Act (other than cooling ponds as defined in 40 CFR 123.11(m) which also meet the criteria of this definition) are not waters of the United States.
- 8) Waters of the United States do not include prior converted cropland. Notwithstanding the determination of an area's status as prior converted cropland by any other federal agency, for the purposes of the Clean Water Act, the final authority regarding Clean Water Act jurisdiction remains with EPA.*

With a few exceptions, the courts have generally upheld the Corps' regulations, affirming its expanded jurisdiction to include:⁶¹

- Usually dry arroyos with only occasional surface flows;
- An isolated lake;
- An isolated wetland;

- Wetlands adjacent to a recreational lake used by interstate travelers;
- Private lands flooded by releases from a federal dam;
- A mangrove forest;
- Hardwood bottomland;
- Wetlands connected to waters of the United States by artificial ditches; and
- An artificially created wetland.

Isolated Wetlands and the Migratory Bird Rule

In 1986, the Corps adopted what has become known as the “Migratory Bird Rule,” in a preamble to proposed regulations.^{*} The rule listed several factors that would connect a wetland to interstate commerce, thereby bringing the wetland within the Corps’ jurisdiction. This rule provided that the Corps’ 404 jurisdiction extended to intrastate waters:

- (a) That are or would be used as habitat by birds protected by migratory bird treaties; or
- (b) That are or would be used as habitat by other migratory birds that cross state lines; or
- (c) That are or would be used as habitat for endangered species; or
- (d) That are or would be used to irrigate crops sold in interstate commerce.⁶²

The question of whether the connection between isolated wetlands and migratory bird habitat is a sufficient link to interstate commerce has been addressed by several federal court decisions. In *Tabb Lakes v. United States*, the Fourth Circuit court held that the rule needed to go through administrative rulemaking procedures, and that the Corps lacked jurisdiction in applying the migratory bird test to require a Section 404 permit.⁶³ Although the Fourth Circuit ruling is applicable only to the geographic region of the southeast, in practice, some Corps districts have avoided using the rule. Some districts use the rule only when there is a positive connection between wetlands that *are in fact* used by migratory birds that cross state lines.⁶⁴

A ruling in *Leslie Salt Co. v. United States* appeared to have answered the question of whether migratory bird habitat is a sufficient connection to interstate commerce to warrant federal jurisdiction.⁶⁵ In 1990, the Ninth Circuit court held that the Commerce Clause, and thus the Clean Water Act, is broad enough to extend the Corps’ jurisdiction to local waters that potentially provide habitat to migratory birds and endangered species. But the Court did not rule specifically on the question of the Corps’ authority over isolated waters, although it found that adjacent wetlands were within the Corps’ regulatory sphere. Subsequently, Leslie Salt petitioned the U.S. Supreme Court to decide whether the Corps had jurisdiction over isolated, non-navigable water bodies on its

^{*} The rule was included in the preamble to other regulations, but was never formally adopted through an administrative rulemaking procedure.

property adjacent to San Francisco Bay. The Court declined to consider Leslie Salt's appeal and let the Ninth Circuit decision stand.

The question of Corps jurisdiction over isolated wetlands rose again with the case of *Hoffman Homes, Inc. v. Administrator, US Environmental Protection Agency*.⁶⁶ In *Hoffman Homes*, the Seventh Circuit held that neither the Clean Water Act nor the Commerce Clause authorizes regulation of isolated wetlands. Later, in 1992, the Seventh Circuit set aside its *Hoffman Homes* opinion, without explanation. In an additional confusing twist, in 1993 the Seventh Circuit held that EPA was authorized to issue regulations giving it authority over isolated wetlands based on their potential effect on interstate commerce. The court ruled, however, that EPA had improperly imposed a \$50,000 penalty on a developer under the facts of the *Hoffman Homes* case.⁶⁷

THE 404 PROGRAM

Section 404 of the Clean Water Act requires a permit from the Corps for activities that would result in the discharge of fill into waterways and wetlands. Activities regulated under this program include projects that would place fill for development, such as construction of dams and levees, bridges, and port facilities. Projects that would place fill in waters to convert wetlands to agricultural, forestry, or urban uses must also obtain permits under this program. The law exempts routine activities associated with farming, ranching, and harvesting timber.*

The Corps' 404 program is very decentralized. Nine divisions and 36 district offices implement the permitting authority of the Clean Water Act. Permits are processed at the district level. In California, there are three districts: San Francisco, Sacramento, and Los Angeles. The district engineers typically make the final decision on wetlands determination and issue permits.

Although the Corps carries out the day-to-day responsibilities of the 404 program, the EPA manages the program. It develops policy, guidance for issuing permits, and regulations, and handles administrative appeals. Under some circumstances, the EPA can make final jurisdictional determinations. The EPA is the only federal agency with veto power over a proposed Corps permit – it has used its veto power 11 times since the program began.⁶⁸

The Corps' 404 program includes individual permits for more significant and complex projects, and nationwide, or general, permits for actions that are similar in nature and that will have a minor effect on wetlands. Through the nationwide or general permits, the Corps allows landowners to proceed with projects without having to obtain individual permits. They are issued for five-year periods and must be renewed by the Corps.

* A recent Ninth Circuit Court decision determined that the practice of "deep ripping" soils was an activity requiring a section 404 permit. The court's decision rested on the finding that deep ripping altered the hydrological regime, thereby affecting the extent of waters of the United States. Also, the activity in question was a change of use from rangeland to vineyards, not continuation of an existing practice. (*Borden Ranch v. U.S. Army Corps of Engineers and U.S. EPA*, Ninth Circuit, No. 00-15700, Filed August 15, 2001)

Typically, the Corps permit process begins with an application by an individual or organization that wishes to fill an area for development. To determine the extent, if any, of jurisdiction on a property, the Corps performs a “jurisdictional determination.” The determination is an assessment of whether the property at issue contains wetlands and waters of the United States subject to Corps’ jurisdiction. If there are jurisdictional wetlands on the property, the Corps processes the permit following guidelines established jointly with the EPA, known as the Section 401(b) guidelines.

Defining Wetlands

Wetlands are defined by the Corps’ regulations as:⁶⁹

[T]hose areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions.

Water is the most important criterion, for without it, there could be no wetlands soils or vegetation. Water drives oxygen from the soils to produce “hydric” or wetlands soils. Plants that exist under conditions of inundation or saturation have adapted to growing in soils that at least periodically lack oxygen. The plants and microorganisms living in wetlands soils quickly use up the available oxygen, leaving an environment without oxygen. To survive in saturated soils, wetlands plants have developed special adaptations. These can be taking oxygen into their roots from the atmosphere, or metabolizing at a slower rate to survive until the water recedes. Most plants without these adaptations cannot survive in wetlands.

The Corps’ definition reflects the balancing act between science and policy that permeates wetlands regulation. Although it encompasses far fewer wetlands than the reference definition suggested by the National Research Council (see page nine), according to the Environmental Defense Fund, the Corps’ definition “accurately reflects scientific concepts of wetlands. It focuses on the biological test of whether saturation occurs long enough to drive out vegetation that cannot survive in an environment without oxygen. Furthermore, it allows wetlands to be identified even in dry periods through examination of the plants and soils.”⁷⁰

In effect, this definition limits Corps jurisdiction by restricting the qualifying wetlands. It requires a wetland to have evidence, or indicators, of three key criteria for the Corps to assert jurisdiction: wetlands soils, wetlands plants, and water. By contrast, as discussed on page ten, the FWS uses a definition that requires only one of the three criteria to infer the presence of the others.

The Corps uses the “normal circumstances” criterion to limit its jurisdiction over certain wetlands. In a Regulatory Guidance Letter (RGL),⁷¹ the Corps explained that they do not intend to regulate areas that are not aquatic but that have an abnormal incidence of aquatic vegetation. For example, some wetlands plants can survive in uplands areas because the soils may be salty. Further, the RGL states that the Corps intends to regulate discharges into the aquatic system as it exists and not as it may have existed during a previous period of time.

The “normal circumstances” criterion can also be seen as an effort to counter the incentive created by the definition to remove one of the three wetlands indicators, and thus evade regulation. Some landowners have disked wetlands to eliminate aquatic vegetation, or drained them to remove the water. * Using the “normal circumstances” criterion, the Corps can assert jurisdiction if they have evidence that water or wetlands vegetation is normally present on a site.

Delineating Wetlands

Delineating, or identifying, wetlands is a very controversial matter. Many wetlands, particularly in California, can be dry at some time (or even for prolonged periods), and many species of plants found in wetlands can also exist outside wetlands. One of the challenges in identifying wetlands is to be able to identify wetlands with diverse vegetation at all times of the year. A second difficulty is that human disturbance of wetlands further complicates identification of wetlands. Some wetlands have been intentionally disturbed to evade regulation, while others are farmed during dry years or in dry portions of the year. Many others have been altered by changes to wetlands hydrology caused by dams or levees. These may or may not still function as wetlands, by providing habitat for waterfowl or filtering runoff.⁷²

Throughout the 1970s and 1980s, wetlands scientists worked to develop field manuals to delineate wetlands. The Fish and Wildlife Service was the first to publish a classification scheme for wetlands, *The Classification of Wetlands and Deepwater Habitats of the United States*, in December 1979. Eventually, four federal agencies developed similar techniques. The Corps first issued a Manual for delineating wetlands in 1987. EPA and the Soil Conservation Service subsequently issued separate manuals in 1988.

All the manuals established certain, and similar, criteria for a wetland – vegetation, soils, and periodic saturation of the root zone. Each manual included guidance on the kinds of evidence that might be used to prove that these criteria were met. Each manual allowed evidence of two criteria to establish the third. For example, evidence of soils and vegetation would prove the hydrology. Or for disturbed sites, hydrology and soils could prove that wetlands vegetation should normally be present.

In January 1989, the Corps, EPA, Fish and Wildlife Service, and the Soil Conservation Service released a proposed Joint Delineation Manual. The 1989 Manual established alternative hydrology criteria, specifying several indirect indicators that could be used, in the absence of water, to identify a wetland.⁷³ The revised manual created an uproar, and a flurry of Congressional efforts to restrict the Manual’s jurisdictional reach ensued.

* The practice of disking wetlands to avoid Corps jurisdiction has been so widespread that the Corps and EPA issued the “Tulloch Rule” in an effort to control disking. In 1998, a federal court ruled that the Corps and EPA lacked the authority to regulate “incidental fallback” of materials from disking and draining activities. Since the rule was vacated, the agencies estimate that 20,000 acres of wetlands were ditched, drained, and destroyed, mainly in the southeastern states. In addition, 150 miles of streams were channelized. The Corps and EPA prepared a new rule to regulate these activities, which took effect January 17, 2001. The new rule amends the Corps and EPA regulations to establish a rebuttable presumption that the use of mechanized earth-moving equipment for land clearing, ditching, channelization, in-stream mining, or other activities in waters of the U.S. will result in a discharge of dredged material.

Opponents of the proposed requirements contended that the 1989 Manual expanded the Corps' jurisdiction to areas that were far from what the public considered to be aquatic areas. Vice President Dan Quayle called it "one of the largest land grabs in modern times." The American Farm Bureau claimed it expanded the Corps' wetlands jurisdiction by more than 60 million acres. The Environmental Defense Fund contended that the Manual did none of those things – instead, it expanded the areas regulated only in a few regions where the Corps had not been following its own 1987 Manual.⁷⁴

At the request of the White House and the Council on Competitiveness, the four agencies published a proposal in the Federal Register to greatly restrict the scope of the Manual. Furious opposition met this proposal too, this time from the other side. The proposal would have required that a delineated wetland must have water at the surface for ten to 20 days during the growing season. The opponents contended that wetlands vegetation grew as a result of saturated soils at the root zone regardless of whether the surface was inundated. They also complained that the requirement to actually find water at the surface would, if done fairly, result in delays and planning difficulties because it would be necessary to do the delineation only during the rainy periods.⁷⁵ Meanwhile, President Bush (the first) signed a law preventing the Corps from using the 1989 Manual in permit applications. As a result, the Corps and EPA use the 1987 Manual.*

Section 404(b)(1) Guidelines

Once the Corps has established jurisdiction over wetlands on a property, it processes a 404 permit application according to the 404(b)(1) guidelines. These guidelines, developed by the EPA, contain policies and standards, which the Corps applies when reviewing permit applications for projects in jurisdictional waters.⁷⁶ They are applied uniformly to all projects involving fill in wetlands, including isolated wetlands.

The Section 404(b)(1) guidelines prohibit placing fill for non water-dependent projects in water bodies and wetlands. The guidelines require that projects avoid harming wetlands, by using an alternate location or project. If that proves to be infeasible, the guidelines then require minimizing effects on wetlands, and mitigation for the unavoidable effects.

One of the more restrictive aspects of the guidelines is the rebuttable presumption that there are upland alternatives to projects that propose fill in wetlands and waters.[†] In other words, the Corps will not issue a permit for placing fill into water bodies or wetlands unless the permit applicant can demonstrate that there is no practicable alternative that would have fewer impacts on the aquatic ecosystem.⁷⁷ Practicable alternatives are then

* After the controversy over the 1989 interagency wetlands delineation manual and the 1991 proposed revisions, the National Research Council was asked to assess the adequacy and validity of wetland definitions, the basis for applying definitions through delineation manuals, the current knowledge of the structure and function of wetlands, and regional variation among wetlands. Its report was published as *Wetlands: Characteristics and Boundaries*, National Academy Press, Washington, D.C., 1995. The NRC recommended that a common delineation manual be prepared for use by all four federal agencies. The new manual would draw from the strengths of the previous manuals, but would also incorporate a more regional approach within a framework of national standards. So far, no new manual has been prepared.

† Black's Law Dictionary defines rebuttable presumption as "an inference drawn from certain facts that establish a prima facie case, which may be overcome by the introduction of contrary evidence."

defined as being “available and capable of being done after taking into consideration cost, existing technology, and logistics” in light of the purpose of the project. The alternatives include activities that do not involve a discharge of dredged or fill material into waters of the United States.

The guidelines also presume that, for projects that do not need to be in or near a “special aquatic site,” there are available practicable alternatives that do not involve special aquatic sites.^{*} Further, where a fill project is proposed for a wetland or other special aquatic site, all of the practicable alternatives are presumed to have fewer adverse impacts on the aquatic ecosystem.

The restrictions on fill continue.⁷⁸ No fill in waters of the United States or wetlands may be permitted if it:

- Causes or contributes to any violation of state water quality standards;
- Violates any toxic effluent standard or prohibition;
- Jeopardizes the continued existence of species listed as endangered or threatened under the federal Endangered Species Act, or results in the likelihood of destruction or adverse modification of designated critical habitat (per the Endangered Species Act);
- Violates any requirement to protect any marine sanctuary.

Through the 404(b)(1) guidelines, developed by EPA under its regulatory authority and implemented by the Corps, the Clean Water Act protects the *ecological* functions of the waters of the United States. The restrictions on fill protect aquatic ecosystems and wildlife dependent thereon from the effects of pollutants, and require the consideration of the effects at different life stages. No fill can be permitted if it would have significant adverse effects on aquatic ecosystem diversity, productivity, and stability. These effects may include the loss of fish and wildlife habitat, loss of the capacity of a wetland to assimilate nutrients, purify water, or reduce wave energy.

401 Certification

Although the Corps has the lead role in regulating wetlands under the 404 program, the states have a complimentary role in determining the impacts of a Corps permit on water quality. Under Section 401 of the Clean Water Act, states must determine whether any Section 404 permit issued by the Corps complies with state water quality standards. This includes permits for discharging dredged or fill material, levee construction, channel clearing, and fill of wetlands or other water bodies for developing land. The State may issue, with or without conditions, or deny certification for permits issued by the Corps. According to one observer, “water quality certification has allowed many states to exercise regulatory control over wetlands, without the expense of establishing independent state permitting, monitoring, and enforcement programs.”⁷⁹

^{*} Special aquatic sites include sanctuaries and refuges, wetlands (as defined in 40 CFR 230.31), mud flats, vegetated shallows, coral reefs, and riffle and pool complexes.

The 401 certification program is triggered only by permit applications under the federal Section 404 program. Thus, the scope of a state's authority under this mechanism depends on the scope of federal regulatory permitting authority. Apart from this federal law, states have broad authority to regulate waters in their jurisdiction.

Coordination with Endangered Species Act Requirements

Although the Corps is the primary regulator of land use activities that affect wetlands, the U.S. Fish and Wildlife Service (FWS) also has an important role. The FWS operates under a number of statutory authorities including the *Fish and Wildlife Coordination Act*, the *Endangered Species Act* (ESA), the *Estuary Protection Act*, the *Migratory Bird Act*, the *Marine Mammal Act*, the *Land Use and Water Conservation Fund Act*, and the *National Environmental Policy Act*. FWS' basic responsibilities are to protect the nation's natural resources, including migratory birds, fresh water fish, and endangered species. The FWS maintains the National Wildlife Refuge System that includes many sites in California, including the Klamath Basin, San Diego, Central Valley, and San Francisco Bay refuge complexes.

In wetlands regulation, the FWS' role is to review proposed permits to determine the potential effects on wildlife and habitat. In particular, the FWS determines whether a project permitted by the 404 program might affect a federally listed threatened or endangered species or their designated critical habitat. If not, then the FWS decision is put in writing and the coordination process ends. If a project might affect a listed species or its habitat, then the Corps and the FWS conduct a "Section Seven Consultation." This formal consultation process, required by the ESA, allows the FWS 45 days to prepare a biological opinion. In the biological opinion, the FWS analyzes the possible effects of the project and identifies alternatives that would not harm the species or its habitat. It can include a statement of "incidental take" that describes how the project might harm the species or its habitat without jeopardizing the listed species. The Corps must incorporate the terms and conditions of the incidental take statement as permit conditions.⁸⁰

The extent of FWS involvement depends on the species and habitat affected by the wetlands project, as well as the extent of federal involvement in the project. If there are no rare, threatened, or endangered species involved, then the FWS' role is limited to recommending actions to minimize or mitigate for harmful impacts on wildlife resources. If there is no federal permit or funding involved, the ESA has no provision that triggers FWS review of a project. State or local agencies frequently notify the FWS of a proposed project through the public notice requirements under the California Environmental Quality Act (CEQA) or other statutes. If that occurs, and there are listed species or critical habitat involved, then the project proponent must obtain an "incidental take" permit under Section Ten of the ESA. The incidental take permit requires the preparation of a habitat conservation plan (HCP).*

* The process for obtaining an incidental take permit and getting an approved HCP is considered to be more complex than the consultation process with the Corps and FWS. The permit and HCP must satisfy FWS criteria for protecting the listed species, and must be reviewed under the National Environmental Protection Act (NEPA), as well as under the California Endangered Species Act (CESA) if the species in question is also listed by the state. CEQA review and compliance is also required. The consensus in the regulated

OTHER FEDERAL AGENCY ROLES IN WETLANDS MANAGEMENT

The primary regulatory program for wetlands is that conducted by the Corps of Engineers and the EPA under Section 404 of the Clean Water Act. However, a number of other federal agencies have responsibilities for reviewing and commenting on proposed permits. Other agencies have independent programs for preserving and acquiring habitat, or for managing wetlands.

The various federal agencies and their roles are briefly described below. This summary is based on the San Francisco Estuary Project's *Status and Trends Report on Wetlands, 1991*. Additional details of these agencies activities may be found in that document, as well as in Cylinder et al, *Wetlands Regulation: A Complete Guide to Federal and California Programs*.

National Marine Fisheries Service. The NMFS shares with the FWS the responsibility for listing species under the ESA. For marine, estuarine, and anadromous fish and marine mammals and their habitats, NMFS reviews projects and carries out the biological consultation and incidental take provisions of Sections 7 and 10 of the ESA.

National Resource Conservation Service. The National Resource Conservation Service (NRCS), under the Department of Agriculture, is involved in soil analysis and erosion control, providing technical assistance to farmers, river basin surveys, and small watershed projects. NRCS serves as staff to the Local Resource Conservation Districts, and is responsible for the wetlands conservation activities authorized in the Farm Bill. The "Swampbuster" program discourages further conversions of wetlands to agricultural purposes. Under Swampbuster, commodities produced on wetlands converted to agriculture after December 1, 1985 are ineligible for federal price support payments. The Conservation Reserve Program sets aside highly erodible croplands for a period of 10 years. The program is voluntary, and payments to farmers are established by individual bid. Former wetlands experiencing wind erosion and buffer strips adjacent to streams, lakes, and wetlands are both eligible.

U.S. Bureau of Reclamation. The Bureau is the "federal equivalent to the California Department of Water Resources."⁸¹ Beginning in the early part of the 20th century, the Bureau carried out projects to drain vast acreage of wetlands throughout California, and assist in their conversion to agriculture. In addition to operating the pumping plant in the Southern Delta for the Central Valley Project, the Bureau operates the Delta Cross Channel, which moves Sacramento River water more efficiently toward the pumps. The Bureau has been a major federal partner in the CalFed process, reflecting their relatively new role in resource management. The Bureau also participates in efforts to manage and protect the Suisun Marsh from development and further degradation to its water quality.

Federal Emergency Management Agency, (FEMA) provides assistance to the state in the event of natural disasters. FEMA has developed specific policies for areas subject to recurring flooding, such as the Delta. FEMA now requires hazard mitigation and floodplain management plans for areas that have been declared federal disaster areas and

community appears to be that they would prefer to deal with the Corps than to go through the incidental take permit process.

received federal assistance. Executive Order 11988, Floodplain Management (1977) was specifically aimed at discouraging development in floodplains and thereby reducing the frequency of flood disasters.

EFFECTIVENESS OF THE 404 PROGRAM

According to program data compiled by the Corps,⁸² the agency received an average of 64,500 permit requests annually, nationwide, from 1996 to 1999. Of those, more than 84 percent of projects were authorized under nationwide permits. * About seven percent were required to obtain individual permits. Only 0.3 percent of applications for individual permits were denied. In FY 1999, the Corps issued permits for 21,556 acres of wetlands impacts (30 percent less than in FY 1998). Those permits required that 46,433 acres of wetlands be restored, created, enhanced, or preserved as mitigation for the authorized losses.

Controversy and criticism have dogged federal regulation of wetlands throughout its existence. Although Congress has not enacted major changes to the Clean Water Act since 1977, it has been a forum for debates on wetlands issues. Numerous wetlands bills have been introduced in recent Congresses, but none have been enacted. A recent Congressional Research Service report summarized the two sides in the debates over wetlands issues as follows:

- “Environmental interests and wetlands protection advocates who have been pressing for greater wetlands protection by improving coordination and consistency among agencies and levels of governments, and strengthened programs; and
- Others, including large landowners, farmers, small businessmen, and individuals who own small parcels of land, who counter that protection efforts have gone too far, and that wet areas that provide few wetland values have been aggressively protected. They have been especially critical of the Corps and the EPA for administering the 404 program in an overzealous and inflexible manner.”⁸³

Between 1988 and 2001, the U.S. General Accounting Office (GAO) issued 4 reports on the Corps’ administration of the 404 program. Their concerns range from the delineation of wetlands and the scope of the Corps’ regulatory authority to the quality of information available to monitor and evaluate the program. The major issues are highlighted below.

Program Administration

In 1988, the GAO issued a critical report on the Corps’ administration of the program.⁸⁴ The GAO found that the Clean Water Act did not give the Corps the authority to regulate the activities that cause most wetland losses. (Section 404 regulates discharges of dredged or fill materials into wetlands. It expressly exempts normal farming, ranching, and forestry activities, although these activities caused most wetlands losses when

* A general permit can apply regionally or nationwide. It is a permit by rule for activities with minor impacts or groups of similar activities.

Congress passed the Clean Water Act. It also does not affect activities that drain wetlands.) The GAO also questioned whether the Corps was doing all that it could to protect wetlands under its Clean Water Act authority. In addition, GAO found that neither the Corps nor the EPA maintained comprehensive information on the program's impact on wetlands. Disputes between the Corps and the resource agencies (such as the FWS) were common, with the resource agencies maintaining that the Corps failed to delineate wetlands boundaries broadly enough. The resource agencies also maintained that the Corps failed to consider the cumulative impacts of its permitted activities, and that the Corps failed to properly implement the 404(b)(1) guidelines requirements to consider practicable alternatives to development in wetlands.

GAO recommended that the Corps do the following to improve the program:

- Work with EPA to develop a baseline from which to determine the extent of the program's impacts on wetlands;
- Work with EPA and the FWS to develop consistent and workable procedures for wetlands delineations, considering practicable alternatives to filling in wetlands, and allowing resource agencies to appeal district engineers' permit decisions.

In 1993, the GAO revisited the Corps' administration of the 404 program and found that the Corps had not made much progress in addressing the earlier study's recommendations.⁸⁵ Only in 1992 did the Corps announce that it would change its reporting system to collect needed baseline information on the extent to which the 404 program controlled development of wetlands. The controversial 1989 delineation manual and 1991 proposed revisions were withdrawn, resulting in no progress on the delineation problem. At the time GAO issued its report, the Corps, EPA, and FWS were still negotiating guidance for considering practicable alternatives to projects and studying ways to assess the cumulative impact of 404 permit decisions.*

Progress on “No Net Loss”

Since the Clean Water Act was passed, the rate at which wetlands are destroyed has slowed considerably. According to the inventories of the nation's wetlands prepared by the FWS, between the 1950s and the mid-1990s, the estimated rate of wetland conversion (loss) declined from 458,000 acres per year to about 58,500 acres per year.⁸⁶ Despite these positive results, the 404 program (in combination with other state and federal efforts) has not yet met the goal of “no net loss” of wetlands.†

* Later that same year, the Corps and EPA jointly issued field guidance (Regulatory Guidance Letter 93-02) to establish the level of analysis required of practical alternatives. Generally, the more complex the project, the greater the amount of information and level of analysis that is required to determine whether practicable alternatives exist.

† In its latest report on the status and trends of wetlands, the FWS estimated that 105.5 million acres of wetlands remained in the conterminous United States in 1997. Between 1986 and 1997, the net loss of wetlands was 644,000 acres. Urban development accounted for 30 percent of all wetlands losses; 26 percent resulted from conversions to agriculture; 23 percent from silviculture, and 21 percent from rural development. Freshwater wetlands accounted for 98 percent of the wetlands converted to other uses. FWS attributes the decreasing loss of wetlands to a variety of factors, including the “enforcement of wetland

The GAO questioned the validity of the FWS' wetlands acreage figures in its 1998 report.⁸⁷ After studying the 36 federal agencies that conduct wetlands-related activities, the GAO concluded that the consistency and reliability of wetlands acreage data is questionable. Although both the FWS and the NRCS maintain inventories of wetlands, their published estimates of remaining wetlands and wetlands losses are not consistent. Further, the GAO found that there is no single set of wetlands acreage data that could be used to determine the nation's progress in meeting the goal of "no net loss."

The Corps has been criticized for failing to aggressively protect wetlands. According to a recent article in the Washington Post, the Corps issues more than 80,000 general permits each year for work on wetlands with virtually no review. Of the properties that it does review, it finds "no significant impact" and approves projects about 99 percent of the time. In particular, the Post reported that the Corps failed to consider the cumulative environmental damages of the approved projects. The commander of the Corps, General Robert B. Flowers, vowed that the Corps will focus more on cumulative effects and will do more to mitigate the environmental damage of the projects it approves.⁸⁸

Effectiveness of Compensatory Mitigation

Mitigation – the creation or enhancement or restoration of wetlands as a condition of obtaining a development permit – has become increasingly important in the 404 program. It allows projects to proceed that entail fill in wetlands, while requiring the project proponent to create, enhance, or restore wetlands elsewhere. These mitigation efforts can occur through purchasing credits in mitigation banks, by making in-lieu fee arrangements with public or non-profit organizations, or ad hoc arrangements.

Two recent studies have taken issue with the Corps' approach to compensating for wetlands destroyed by permitted projects. In May 2001, the GAO issued a report addressing the in-lieu fee option.⁸⁹ Under the in-lieu fee approach, fees from developers were used to restore, enhance, or preserve wetlands. In some cases, wetlands were created with the fees. Between 1998 and 2000, developers paid more than \$39.5 million to in-lieu-fee organizations* to compensate for more than 580 acres of adversely affected wetlands. GAO concluded that it is uncertain whether in-lieu fee mitigation has been successful because:

- Corps officials in 11 of 17 districts with the in-lieu fee option said that the number of wetland acres restored, enhanced, preserved, or created by the in-lieu fee organizations equaled or exceeded the number of wetlands acres adversely affected. However, data submitted by more than half of those districts did not support these claims.

protection measures and the elimination of some incentives to drain wetlands. In addition, public education and outreach efforts about the values and functions of wetlands, private initiatives, coastal protection programs, and wetlands restoration and creation efforts have helped to reduce overall wetlands losses."

* The GAO does not list or define the in-lieu fee organizations specifically, but distinguishes them from mitigation banks. Both types of organizations provide similar mitigation services, except that banks sell credits in the mitigation site. Often, the two types of organizations were found to compete for mitigation fees within the same Corps districts.

- Officials from nine of the 17 districts said that functions and economic values lost from the adversely affected wetlands were replaced at the same level or better through in-lieu mitigation. However, officials in more than half of those districts acknowledged that they have not tried to assess whether mitigation efforts have been ecologically successful.

In addition, the GAO found that oversight of mitigation affairs was lacking in more than half the districts using the various mitigation arrangements. Corps personnel disagreed on whether responsibility for the ecological success of mitigation rests with the fund recipient or the developer.

Another study of the Corps' mitigation program, published in July 2001 by the National Research Council (NRC), found that the program fails to meet the goal of no net loss of wetlands functions.⁹⁰ In particular, the NRC report found that the Corps does not adequately monitor and enforce mitigation requirements. Further, the NRC concluded that projects constructed artificially do not replace the functions of naturally occurring wetlands. According to the NRC report, developers obtained permits to develop about 24,000 acres of wetlands between 1993 and 2000, and are required to create 42,000 acres of wetlands. Unfortunately, the Corps has not followed up to ensure that the wetlands creation projects were completed.

On October 31, 2001, the Corps issued a Regulatory Guidance Letter on mitigation procedures. The new guidance outlines additional procedures for Corps staff to follow in determining mitigation requirements and ensuring that the mitigation actually occurs. According to the Corps, the new policy is intended to respond to the NRC recommendations. The guidance requires Corps staff to evaluate wetlands losses and mitigation in the context of the whole watershed. It also requires permittees to provide a mitigation and monitoring plan, and financial assurances that the mitigation project will occur. However, one of the more controversial provisions allows developers to use dry land to partially offset wetlands losses if that land helps protect remaining wetlands. In addition, in some cases, developers can mitigate for wetlands losses by bolstering the protection of existing wetlands. This approach would seem to allow a net decline of wetlands acreage. As reported in an article in the Los Angeles Times, a federal official said: "If they fill an acre and preserve an acre, you've had a loss of an acre."⁹¹

EFFECT ON CALIFORNIA'S WETLANDS

In practice, the Corps is the primary regulator of wetlands throughout California with jurisdiction over most waters and wetlands in the state. Prior to the SWANCC decision, wetlands were broadly defined by regulation and case law to include areas that are far from navigable waters, both in distance and function. The Corps asserted jurisdiction wherever the destruction of the wetland could have an adverse impact on interstate commerce. The presence, or potential presence, of migratory birds was assumed to create a sufficient connection to interstate commerce to warrant federal regulation. Thus, wetlands in California that fell within the Corps regulatory program included vernal pools, intermittent streams, desert playa lakes and oases, salt ponds, and wetlands created by the discharge of treated wastewater. In effect, almost no wet area was outside of the

Corps jurisdiction before SWANCC. But the actual effect of the 404 regulatory program is unclear.

Corps Permits in California

During the mid-1990s, when wetlands regulation last emerged as a national controversy, the Environmental Working Group, a non-profit organization, conducted a study of the Corps' permit data.⁹² They found that:

- The majority of all applications for wetlands permits were granted between 1988 and 1994. Of the 3,762 permit applications in California, 215 (5.7 percent) were denied. Of those 215 permits, 112 were associated with one project proposed by the California Department of Water Resources.* This project was denied by the Corps in 1993. Other than this project, only 103 permit applications were denied, or about 15 denials each year.
- Of the 215 permit denials, 193 (89 percent) were in four counties: San Luis Obispo (84 denials), Los Angeles (49 denials), Santa Barbara (46 denials), and Ventura (14 denials).
- Many California counties had little or no wetlands permitting activity of any kind. Twenty-two counties had between one and five individual permit applications in the seven-year study period. In six counties, one or more general permits were issued but no individual permits were issued, denied, or withdrawn.[†]

Requests for more recent data produced mixed results at the three Corps' offices in California. Each District office maintains a database with information about the level of wetlands permit activity and acres affected from 1988 through the present. However, according to several Corps staff, the data is not terribly reliable as some project managers failed to enter data for all projects, and there was no consistency about the data that was entered into the database. In particular, while some project managers noted that the permits involved isolated wetlands or vernal pools, others did not provide this information. Thus, it is not possible to determine (without more extensive research than is possible for this paper) the effect of the Corps' program on the types of wetlands affected by the SWANCC decision.

Questionable data quality aside, the Research Bureau obtained the following information under Freedom of Information Act (FOIA) requests:

- The Sacramento District received permit applications for 3,706 acres of fill in non-tidal wetlands between 1988 and 2001. Of these, the Corps issued permits for 1,623 acres of fill and required 3,014 acres of mitigation. Enforcement actions addressed 48 acres of illegal fill.

* The DWR project was described in the Corps' data as a "trenched water crossing" that would have affected at least 13 creeks and other water bodies.

[†] General Permits constitute the bulk of all wetlands permits. General permits require little Corps review and are approved in a few days or weeks. Individual permits are for larger or more complex projects and require greater scrutiny by the Corps. Some individual permits may place restrictions on a development project to minimize or compensate for any damage to the wetlands.

- The number of permits issued by the Sacramento District for fill in isolated wetlands or vernal pools rose between 1988 and 2000. In 1988, one permit was processed for 41.5 acres of fill, requiring 41.1 acres of mitigation. The peak level of activity occurred in 1999, when the Corps issued 26 permits for 23 acres of fill and required 27 acres of mitigation.
- The San Francisco District received permit applications for 2,694 acres of fill in non-tidal wetlands between September of 1996 and September 2001. Of these, the Corps issued permits for 2,654 acres of fill and required 3,810 acres of mitigation. The San Francisco District did not provide data for isolated wetlands and vernal pools.
- The Los Angeles District did not respond to the Research Bureau's FOIA request for data.

404 and San Diego Vernal Pools

Between 1850 and 1988, San Diego County lost 92 percent of its vernal pools to urban development and agriculture.⁹³ Additional losses were expected by 1990, as many development projects were approved and ready to begin construction. A DFG study of the actual and expected vernal pool losses between 1979 and 1986 found that the Corps 404 permit program allowed a relatively lower rate of destruction of vernal pools in San Diego County.⁹⁴ The study compared vernal pool losses resulting from projects reviewed and approved under four different regulatory jurisdictions:

1. Those within the City of San Diego and subject to individual Corps 404 permits;
2. Those within the City of San Diego, subject to the Corps' nationwide 404 permits, reviewed through the CEQA process, and subject to the City's Vernal Pool Preservation Plan;
3. Those on federally owned land, primarily U.S. Navy; and
4. Those within jurisdictions other than the City of San Diego, including San Diego County.

The comparison study found that the Corps individual permit requirements preserved more vernal pools (74 percent) than did nationwide permits combined with the City of San Diego's requirements (21 percent). Navy projects, reviewed by the Corps and the FWS, resulted in a loss of eight percent of vernal pools. Projects outside of the City, subject to CEQA review only, resulted in a loss of 13 percent of vernal pools. It should be noted that responsibility for these wetlands losses cannot be apportioned to City, County, Navy, or Corps permitting standards. The study did not provide enough information about the projects under review, nor the standards and mitigation requirements used by the City, County, or the Navy. Although the results suggest that the 404 program had a positive effect in preserving vernal pools, it does not prove that the 404 program is the best approach to protecting such wetlands.

Farmland Exemptions

Routine farming activities are not regulated by the Corps, even though draining wetlands for agricultural uses caused the majority of the nation's wetlands losses. In California, agricultural conversion was responsible for about 95 percent of the net loss of freshwater wetlands between 1939 and the mid-1980s. Section 404(f) of the Clean Water Act specifically exempts routine agriculture and silviculture activities, including "plowing, seeding, cultivating, minor drainage, harvesting for the production of food, fiber, and forest products, or upland soil and water conservation practices." Construction of farm or stock ponds, irrigation and drainage ditches, and the maintenance of those facilities is also exempt. In addition, the Corps exempts "prior converted croplands" (wetlands modified for agricultural purposes before 1985) from regulation under Section 404.

With California's enormous agricultural sector, agricultural exemptions eliminate a substantial portion of the state from the requirements of the 404 program. The acreage dedicated to agricultural and silvicultural uses can serve as a rough estimate of the effect of this exemption. Of California's approximately 11.4 million acres in agriculture, more than 3.9 million acres are planted in field crops, including hay, corn, cotton, and wheat. Nearly one million acres are planted in grapes. The U.S. Forest Service owns approximately 20.4 million acres of land, of which approximately 13.4 million acres are conifer and hardwood forests. Approximately 14 million acres of forested lands are privately held. In summary, based on broad land use categories, roughly 38.8 million acres (just over a third) of California may be exempt from 404 jurisdiction for "normal" agricultural and forestry practices.⁹⁵

Two recent Ninth Circuit Court decisions may substantially narrow the agricultural exemptions, thereby subjecting more agricultural land to the requirements of the 404 program. In its ruling in *Borden Ranch v. United States Army Corps of Engineers and U.S. Environmental Protection Agency*, the court determined that "deep ripping"^{*} is not a routine agricultural activity because it converts ranch land to orchard and vineyards. The court found that deep ripping in "waters of the United States" discharges material, and is properly regulated under Section 404. In *Borden Ranch*, the Corps had prohibited the landowner from deep ripping acreage that contained vernal pools and swales.

Borden Ranch could substantially increase the amount of land subject to the Corps' regulatory purview in California. A common practice to prepare land for planting orchards and grapes, deep ripping has become controversial as landowners employ it to convert range and pastureland to vineyards. Vineyard plantings have been increasing throughout the 1990s, with new plantings of wine grapes ranging from 17,743 acres in 1993 to a high of 46,916 acres in 1997.^{96†} Assuming that these lands contained some

^{*} "Deep ripping" is a procedure to loosen up soils to allow orchard and vineyards to grow. It consists of dragging four- to seven-foot long metal prongs behind a tractor or bulldozer to gouge through the restrictive clay soil layer. Water that was retained by the clay soils can drain after the deep ripping, and thereby eliminate any wetlands.

[†] The total amount of land in California planted with wine grapes is now 568,000 acres, more than half the total grape acreage in the state.

wetlands, such as intermittent streams or grassy swales, a 404 permit would be required, according to *Borden Ranch*.^{*}

A second ruling, *Headwaters Inc. v. Talent Irrigation District*,⁹⁷ will also expand 404 jurisdiction over agricultural lands. In this decision, the Ninth Circuit Court determined that irrigation canals are tributaries of waters of the United States. Although the Corps has exempted irrigation canals from 404 requirements, the Court found that canals exchanged water with natural waters that are tributaries to waters of the United States. Thus, the Court concluded that canals are subject to Corps' 404 permit requirements as well as water pollution control permits under the National Pollution Discharge Elimination System (NPDES) program.

^{*} The SWANCC decision will affect the extent of the effect of *Borden Ranch*. The Ninth Circuit noted that, as a result of SWANCC, deep ripping in *vernal pools* is not subject to 404 requirements, but that the Corps was within its authority to regulate the swales. The court did not address whether the Corps could establish jurisdiction over the vernal pools by demonstrating a hydrological connection to navigable waters.

Chapter Three: The U.S. Supreme Court's Opinion in SWANCC

On January 9, 2001, the U.S. Supreme Court issued a decision that limited the application of the Clean Water Act. In *Solid Waste Management Agencies of Northern Cook County v. United States Army Corps of Engineers*, (SWANCC), the Court ruled that the Corps does not have authority under Section 404 of the Clean Water Act to regulate intrastate, isolated, non-navigable waters on the grounds that such waters provide habitat for migratory birds.⁹⁸ In a 5-4 decision, the majority found that Corps exceeded its authority under the Clean Water Act when it refused to issue a permit for fill in isolated ponds. The Court construed the Clean Water Act to apply only to “navigable” waters, their tributaries, and wetlands adjacent to those tributaries. In restricting the waters and wetland areas subject to federal regulation under the Clean Water Act, the decision also narrows the areas and activities subject to state certification under Section 401.

By determining that Congress did not intend to regulate isolated wetlands under the Clean Water Act, the Supreme Court shifted the regulatory burden to states and local governments. Some view this change as relief from overzealous federal intervention into local land use planning, and an appropriate delegation of land use control to states and local governments. Others view this shift as “upsetting almost 30 years of cooperative efforts between state and federal governments to protect the nation’s aquatic resources.”⁹⁹ Some wetlands advocates see the decision as removing the only obstacle to the development of fragile and dwindling wetlands. The fate of the isolated wetlands no longer regulated by the Corps will depend on individual states. Each state will handle the responsibility differently.¹⁰⁰

Some observers believe that this decision signals that difficulties lie ahead for a suite of federal environmental protection programs, including endangered species consultations (Section 7 of the Endangered Species Act) and the National Pollutant Discharge Elimination System or NPDES program (Section 402 of the Clean Water Act). These programs, like the Section 404 program, rely on the Commerce Clause for federal authority to protect the environment. These programs frequently restrict the extent to which landowners can develop their property in order to protect fish, plants, and wildlife that do not observe state boundaries.

Other observers see this decision as a necessary restraint on a federal agency that has overstepped its bounds. Groups that filed amicus briefs in the SWANCC case, such as the Defenders of Property Rights and the National Home Builders Association, believe that the Migratory Bird Rule allowed the Corps to claim jurisdiction over the “eight million U.S. isolated wetlands not connected to any water body.” Because “all places on earth are subject to bird use,” these organizations believe that the Migratory Bird Rule allowed the Corps to intrude on the authority that states and local governments have traditionally exercised over local land use.¹⁰¹ Justice Rehnquist reflected their sentiments when he wrote: “Permitting [the Corps] to claim federal jurisdiction over ponds and mudflats falling within the Migratory Bird Rule would also result in a significant impingement of the states’ traditional and primary power over land and water use.”¹⁰²

The SWANCC decision could be seen as an indication that the Court is taking a relatively narrow view of the appropriate scope of Congressional powers over environmental problems. One observer noted that recent Court holdings force environmental issues to be viewed as commercial issues, when Congress did not intend for them to work that way. Every instance of federal regulation must, under this interpretation, be justified by controlling an economic activity that substantially affects interstate commerce. This approach creates a mismatch between the important national problems (water pollution and loss of wildlife) that Congress presumably intended to address through the Endangered Species Act and Clean Water Act, and the somewhat narrow authority that the Court is allowing for the exercise of federal power.¹⁰³

This section will describe the Court's rationale, and the majority and minority opinions in SWANCC.* It will also describe the national impacts of the decision, as well as the Corp's and EPA's preliminary response.[†]

THE MAJORITY OPINION

In the SWANCC case, the Corps had refused to issue a permit to a group of Illinois cities and villages that wanted to develop a solid waste disposal site on an abandoned sand and gravel pit that contained ponds used by migratory birds. A consortium of solid waste management agencies filed suit against the Corps in federal District Court, claiming that the Corps did not have jurisdiction. The District Court ruled for the Corps. The solid waste agencies then appealed to the U.S. Court of Appeals for the Seventh Circuit, which also ruled for the Corps. The agencies then appealed to the U.S. Supreme Court, which accepted the case and overturned the District Court and the Court of Appeals. The majority opinion was written by Chief Justice Rehnquist, and was joined by Justices Thomas, Scalia, O'Connor, and Kennedy.

The Court held that the Corps had exceeded its authority under Clean Water Act Section 404(a) to regulate the discharge of dredged or fill material into the "navigable waters" of the United States. The Clean Water Act defines "navigable waters" as "waters of the United States."¹⁰⁴ Since 1977, the Corps' regulations have defined "waters of the United States" to include:

"other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation or destruction of which could affect interstate or foreign commerce..."¹⁰⁵

The Court did not alter this definition of "waters of the United States." But it did strike down the Migratory Bird Rule, which asserts jurisdiction over wetlands on the basis that they are or may be used as habitat by migratory birds.

* This section is not intended to be a detailed legal analysis of the opinion. For such, see Jon Kusler's analysis of the SWANCC decision and the Morrison & Forester, LLP, analysis of SWANCC, both of which are in the bibliography. In addition, the March/April 2001 edition of the National Wetlands Newsletter, published by the Environmental Law Institute, has several articles on the SWANCC decision.

[†] The Supreme Court's decision is available on-line. Please see the Reference Chapter at the end of this report.

Interstate Commerce and Navigable Waters

The majority found that the Interstate Commerce Clause of the U.S. Constitution was not broad enough to extend the Corps' jurisdiction to isolated waters because they are habitat for migratory birds. Under the "cumulative effect" doctrine, federal agencies may regulate a purely intrastate activity if the activity is part of a class of activities that substantially affects interstate commerce.¹⁰⁶ In past decisions, the court has found that the protection of migratory birds is a "national interest of very nearly the first magnitude."¹⁰⁷ The Court of Appeals, in its decision upholding the Corps' jurisdiction in this case, noted that millions of people spend over a billion dollars annually on recreational pursuits relating to migratory birds, including bird watching, hunting, and travel. Nonetheless, the majority of the U.S. Supreme Court found that these arguments raised "substantial constitutional questions" and that the precise object or activity that, in the aggregate, affects interstate commerce would need to be evaluated.¹⁰⁸

In the end, the majority opinion determined that the Clean Water Act properly applies to navigable waters and their tributaries, and wetlands adjacent to each. The Court concluded that nothing in the history of the act "signifies that Congress intended to exert anything more than its commerce power over navigation."¹⁰⁹

Congressional Intent

In reaching its decision, the Court addressed Congressional intent in passing the Clean Water Act.¹¹⁰ The Court suggested that a clear indication of intent was needed in this case, where "an administrative interpretation of a statute invokes the outer limits of Congress' power."¹¹¹ Finding that there was not a clear indication of Congressional intent, the Court declined to defer to the Corps' interpretation of the statute as allowing jurisdiction to be asserted over isolated waters through the Migratory Bird Rule.

The Court rejected arguments that the Corps had sufficiently broad discretion to issue the Migratory Bird Rule based on the use of the broad definition of *navigable waters* as *waters of the United States* in the 1972 Clean Water Act. The Corps cited comments by members of the Senate and House in the Congressional Record indicating that the statute should have the broadest possible interpretation in order to implement a comprehensive water pollution control scheme for the nation. In addition, the Corps had argued that the failure of a House bill in 1977 to narrow the scope of the Corps' authority was further evidence of Congress' intent to broadly apply Section 404 to isolated waters and wetlands. The Court rejected these and other arguments concerning Congressional intent to regulate anything other than traditionally navigable waters and adjacent wetlands.

Congressional Powers and States Rights

In its discussion of Congressional intent, the Court also observed that their "concern is heightened where the administrative interpretation alters the federal-state framework by permitting federal encroachment upon a traditional state power."¹¹² The Court determined that Congress chose to protect the primary responsibilities and rights of states to plan the development and use of land and water resources, rather than to shift the balance toward federal authority. The Court took the position that federal jurisdiction over ponds and

mudflats falling within the Migratory Bird Rule would result in a “significant impingement on the State’s traditional and primary power over land and water use.”¹¹³

In the end, the court construed the Clean Water Act to apply only to *navigable waters*. The Court noted that in previous decisions it had stated that the “grant of authority to Congress under the Commerce Clause, though broad, is not unlimited.”¹¹⁴ Although the Corps had argued that the Migratory Bird Rule was within Congress’ power to regulate intrastate activities that substantially affect interstate commerce, and that billions of dollars are spent annually on recreational pursuits related to migratory birds, the Court found that these arguments “raised significant constitutional questions.”¹¹⁵ The Court stated that they would have to evaluate the precise object or activity that, in the aggregate, substantially affects interstate commerce. They found that this was not clear, as the Corps first claimed jurisdiction over the land because it contained ponds used by migratory birds, but that later, the Corps focused on the fact that the regulated activity was the petitioner’s municipal landfill, which was plainly of a commercial nature. The Court did not accept the connection between *navigable waters* and *waters of the United States*, as specified in the Clean Water Act, and the ponds at issue in SWANCC. Thus, the Court concluded that the statute should be read so as to avoid “significant constitutional and federalism questions”¹¹⁶ raised by the Corps’ interpretation.

THE DISSENTING OPINION

Justice Stevens prepared the dissenting opinion, underscoring the conflict between the majority and minority interpretation of the major issues addressed in SWANCC. Justices Souter, Ginsburg, and Breyer joined in the dissent. The minority opinion contradicts the majority on the issues of Congressional intent, scope of the Clean Water Act, and interpretation of the Commerce Clause. For each issue, the minority cites previous Supreme Court decisions that the majority dismissed or reinterpreted in reaching its conclusions in SWANCC.¹¹⁷

Justice Stevens pointed out that, contrary to the majority’s ruling, the Clean Water Act is “watershed” legislation, endorsing fundamental changes in both the purpose and scope of federal regulation of the nation’s waters. Where the majority held that the Clean Water Act was properly read as an extension of earlier federal regulation of navigable waters, Justice Stevens stated that the mission of the Clean Water Act was to protect the quality of the nation’s waters for aesthetic, health, recreational, and environmental uses.¹¹⁸ He supported this position by examining the legislative history and previous legal interpretations of the Act.

In reviewing the legislative history of the Clean Water Act, Justice Stevens argued that the text of the 1972 Act affords no support for the Court’s present holding. He noted the differences between the language and intent of the Rivers and Harbors Act and the Clean Water Act. Where the primary purpose of the Rivers and Harbors Act was to maintain navigability, the primary purpose of Section 404 was pollution control. Where the Rivers and Harbors Act contained appropriations for improvements in specific navigation facilities, the Clean Water Act appropriated large sums of money for research and treatment of water pollution. He noted that the Clean Water Act commands federal agencies to “give ‘due regard’ not to the interest of unobstructed navigation, but rather to

‘improvements which are necessary to conserve such waters for the protection and propagation of fish and aquatic life and wildlife and recreational purposes.’”¹¹⁹

Justice Stevens noted that it was necessary for Congress to broaden the jurisdiction of the Clean Water Act to carry out its ambitious goals. Although Congress carried over the term “navigable waters” from the Rivers and Harbors Act and prior versions of the Federal Water Pollution Control Act (which preceded the Clean Water Act), he noted that Congress broadened “the *definition* of that term to encompass ‘all waters of the United States.’” Indeed, the 1972 conferees arrived at the final formulation by specifically deleting the word “navigable” from the definition that had originally appeared in the House version of the Act.” He concluded that the majority’s opinion undoes that deletion.¹²⁰

Justice Stevens argued that Congress’ intent was clear, and that the majority dismissed that intent with its interpretation in SWANCC. He quoted from the Conference Report, which noted that the definition of *waters of the United States* was intended to be given the broadest possible constitutional interpretation. He argued that Congress intended to reach beyond its commerce power to address goals that had nothing to do with navigation.¹²¹ He concluded that “nothing in the text, the stated purposes, or the legislative history of the Clean Water Act supports the conclusion that in 1972 Congress contemplated – much less commanded – the odd jurisdictional line that the Court has drawn today.”¹²²

He noted that the amendments that Congress adopted in 1977 support the Corps’ present interpretation of its mission as extending to so called “isolated” waters. In the debate over the 1977 amendments, “proponents of a more limited Section 404 jurisdiction contended that the Corps’ assertion of jurisdiction over wetlands and other non-navigable waters had far exceeded what Congress intended. Opponents of a more limited jurisdiction argued that a narrower definition of navigable waters would exclude vast stretches of crucial wetlands from the Corps’ jurisdiction, with detrimental effects on wetlands ecosystems, water quality, and the aquatic environment generally.” Although the House debate ended with the adoption of a narrower definition of the Corps’ jurisdiction, in the Senate the limiting provision was defeated and the old definition retained. In the conference committee, the Senate’s approach was adopted and efforts to narrow the definition of “waters of the United States” were abandoned. He concluded that the legislation as ultimately passed was a Congressional endorsement of the position that the Corps maintained in SWANCC.¹²³

Justice Stevens also discussed the scope of the Commerce Clause, and stated that the Corps’ exercise of its 404 jurisdiction over “isolated” waters that serve as habitat for migratory waterfowl falls well within the boundaries set by the Supreme Court’s Commerce Clause jurisprudence.¹²⁴ He reviewed the standards set by the Court in *U.S. v. Lopez* in 1995, when the Court identified three categories of activity that Congress may regulate under its commerce power: (1) channels of interstate commerce; (2) instrumentalities of interstate commerce or persons and things in interstate commerce; and (3) activities that “substantially affect” interstate commerce.¹²⁵ Justice Stevens found that the regulated activity (using waters used as habitat by migratory birds as a landfill) was an economic activity that, in the aggregate, would adversely affect migratory bird populations. He concluded that the regulation of such activities is well within the

appropriate scope of federal power to preserve natural resources that generate interstate commerce. It is not necessary that each individual instance of the activity substantially affect commerce.¹²⁶

NATIONAL IMPACTS OF SWANCC

Prior to SWANCC, virtually all wetlands throughout the nation were subject to regulation under Section 404. The Association of State Wetland Managers collected estimates from the states of the total wetland acreage affected by SWANCC. They found that SWANCC could remove between 30 and 80 percent of total wetland acreage from the jurisdiction of the Corps Section 404 program. They note that even if SWANCC results in only a one percent loss of the nation's wetlands, this would be a greater loss of wetlands than has occurred over the past decade.¹²⁷

Although the Court invalidated the Migratory Bird Rule, it did not describe which connections to interstate commerce would be acceptable means of determining Clean Water Act jurisdiction over isolated waters. In its discussion of Congressional intent and the meaning of “navigable waters,” the majority construes the Clean Water Act so that it applies to navigable waters, their tributaries, and wetlands adjacent to each. At this point, it is impossible to state exactly which isolated, intrastate, non-navigable waters and wetlands are under federal regulation. Subsequent determinations of “navigable waters,” “adjacency,” and “tributary” will clarify the extent of the SWANCC decision. These determinations will be made initially by EPA and the Corps, and ultimately by the Supreme Court.

The Migratory Bird Rule encompassed more than isolated waters used by migratory birds. It also extended the Corps' jurisdiction to waters serving as habitat for endangered species.* A former deputy General Counsel to the EPA observed that the SWANCC ruling appears to bar federal Clean Water Act jurisdiction over any such waters based on their use by endangered or threatened species. It may be difficult for the Corps to demonstrate other connections between some isolated waters and traditionally navigable waters or interstate commerce other than use by migratory birds or endangered species. According to that observer, the majority's rejection of a migratory bird or endangered species connection disregards the importance of such waters, and discounts the important relationships between isolated waters and aquatic ecosystems of navigable waters.¹²⁸

Clearly, the Court has left it to state or local governments to decide whether they wish to regulate certain isolated wetlands. According to the Association of State Wetlands Managers, only 4 states (New Hampshire, New Jersey, Maine, and Pennsylvania) are as comprehensive as the federal program in their regulation of isolated wetlands.[†] Fourteen

* The 404 permit is the trigger that involves the Fish and Wildlife Service in reviewing wetlands projects for effects on endangered species. Without Corps jurisdiction over wetlands that have endangered species, there is no automatic consultation with the FWS. The relationship between the Clean Water Act and state and federal endangered species laws is discussed further in the sixth chapter of this report – the Impacts of SWANCC on California.

† Wisconsin recently enacted a comprehensive state wetlands regulatory program that incorporates the requirements and standards of the 404 program. Please see the Reference Chapter at the end of this report.

states have developed programs with considerable protection for freshwater wetlands.¹²⁹ Most of these programs are cooperative state/local regulatory efforts. However, regulations are limited in many of the fourteen states by wetland size (e.g., 12.4 acres in New York, 5 acres in Michigan for some wetlands), mapping requirements, and exemptions for agriculture.¹³⁰

A Range of Interpretations

Under the broadest reading of SWANCC, the Clean Water Act would only apply to the traditionally navigable waters and waters directly and indirectly connected to navigable waters.¹³¹ These would include all wetlands adjacent to navigable waters and their tributaries, including wetlands bordering and near these waters. (“Near” and “bordering” would need to be defined by regulation.) As long as there is a clear hydrologic connection to navigable waters, the wetlands would be included as waters of the United States and thus subject to the Clean Water Act.¹³² This interpretation would probably exclude prairie potholes, wet meadows, fringing wetlands along smaller rivers, streams, and lakes, forested wetlands, playas, some vernal pools and swales, seeps and springs, bogs, and large amounts of Alaskan tundra. The Corps would regulate only those wetlands that are connected to navigable waters or their tributaries.

The narrowest interpretation of SWANCC would simply eliminate the Migratory Bird Rule as a way of justifying federal jurisdiction over wetlands. The mere presence of migratory birds would no longer suffice to establish federal jurisdiction. However, the Court did not indicate whether some other connection to interstate commerce would suffice to allow regulation of isolated wetlands under the Clean Water Act.

Although it could have thrown out the underlying regulations defining “waters of the United States,” the Court chose to leave them in place. Thus, waters of the United States will continue to include “intrastate lakes, rivers, streams, (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use or destruction of which could affect interstate or foreign commerce.”¹³³ The Corps will need to demonstrate the connection to interstate commerce and/or navigable waters on a case-by-case basis. Future court decisions will reveal which connections will suffice.

The Army Corps and EPA’s Response

On January 25, 2001, six days after the SWANCC decision was published, the Chief Counsel of the Corps and the General Counsel of the EPA issued a Joint Memorandum outlining the effects of the decision.^{*} They note that the Court’s decision affects the scope of regulatory jurisdiction under other provisions of the Clean Water Act as well as the 404 program, including the Section 402 National Pollutant Discharge Elimination System (NPDES) program and the Section 311 oil spill program. They take the narrowest view of the effects of the Court’s ruling, based on the decision, the facts, and the reasoning in *Riverside Bayview Homes*. In summary, the memorandum concludes that the SWANCC

^{*} The EPA/Corps legal memorandum is available on-line. Please see the Reference Chapter at the end of this report.

decision applies only to isolated, intrastate, non-navigable waters. Therefore, the Corps should continue to assert Clean Water Act jurisdiction over all of the “traditional navigable waters, all interstate waters, and all tributaries to navigable or interstate waters, upstream to the highest reaches of the tributary systems, and over all wetlands adjacent to any and all of those waters.”

The memorandum notes that while the Court’s actual holding applies only to non-navigable, isolated, intrastate waters, the discussion was wide ranging. In particular, the memorandum states that the “other waters” portion of the regulatory definition of “waters of the United States,” which lists the various types of intrastate wetlands,¹³⁴ might be affected by the SWANCC decision. The Court’s opinion did not reach the question of which “other waters” Congress intended to address in the Clean Water Act. As a result, the Corps/EPA legal memorandum directs staff to obtain case-by-case jurisdictional determinations for isolated intrastate waters and wetlands such as intermittent streams, prairie potholes, playa lakes, wet meadows, etc, even if they are *navigable*.

For those wetlands that relied solely on the Migratory Bird Rule to establish jurisdiction, the Corps/EPA Memorandum suggests that two other factors may establish jurisdiction:

- For *non-navigable* isolated wetlands, jurisdiction may be possible if the Corps can establish that the use, destruction, or degradation of these waters could affect other waters of the United States; and
- For *navigable* isolated wetlands, jurisdiction may be possible if their use, degradation, or destruction could affect interstate or foreign commerce.

The Limits of Federal Environmental Regulation

In SWANCC, the Court construed the Clean Water Act to apply only to navigable waters, tributaries to navigable waters, and wetlands adjacent to each. This construction of the statute restricts the application of the Clean Water Act to just those waters that are demonstrably related to interstate commerce. In effect, the decision creates an economic test for environmental regulation under the Clean Water Act. In order for federal authority to apply, the activity being regulated must *substantially affect* interstate commerce. This construction of the Clean Water Act precludes regulation of waters or wetlands that have ecological importance but no relation to navigable waters.

Some have said that the SWANCC decision was the Court’s effort to reign in “over-reaching federal bureaucrats interfering with traditional state and local prerogatives in land use planning.”¹³⁵ Organizations that have long argued that the Corps’ regulation of wetlands overstepped its Clean Water Act authority, such as the National Association of Homebuilders and the Defenders of Property Rights, see the SWANCC decision as a legal victory. These groups maintain that the federal government had “injected itself into” regulating the more than eight million “discrete isolated depressional areas in the U.S. that meet the federal definition of wetlands.”¹³⁶ From their perspective, the Court correctly drew a line on federal wetlands regulation, leaving the regulation of isolated wetlands to state and local governments.

Others argue that to restrain federal regulators in this fashion comes at a price – SWANCC makes it far more difficult for Congress to address national environmental and

ecological problems through the Clean Water Act. As one observer put it, “The view of the Clean Water Act left to us by the majority of the SWANCC Court is sadly diminished from the vision of the act’s drafters. The broader societal goal of protecting aquatic ecosystems has been replaced with an anachronistic 19th century focus on the quality of waters used for commercial navigation....it is difficult to conceive that Congress, faced with mounting public concerns in 1972 regarding the pervasive problem of water pollution, would have been satisfied with protecting only the integrity of waters that support barge or vessel traffic....”¹³⁷

Chapter Four: The Debate Over The Regulatory Landscape After SWANCC

SWANCC produced a subtle and ambiguous decision, as is often the case with 5-4 decisions. A considerable debate is occurring over its meaning. A review of that debate follows.

A starting place is to note what has not changed. Other than the Migratory Bird Rule, the Court did not overturn any other Corps regulations or procedures. The Court did not overturn *Riverside Bayview*,¹³⁸ so wetlands *adjacent* to traditionally navigable waters, interstate waters, and tributaries to each are still under Corps jurisdiction. The Corps' definition of wetlands, delineation manual, and definition of "waters of the United States" remain unchanged. As a result, areas that meet the scientific criteria for wetlands are still considered wetlands. However, the SWANCC decision has removed some wetlands from the Corps' jurisdiction.

At first glance, the SWANCC decision is simple— it merely stated that the Corps cannot assert jurisdiction over isolated wetlands solely because the wetland is habitat for migratory birds. However, the Court's wide-ranging discussion of Congress' Commerce Clause authority and the importance of "navigability" as a limit to that authority, indicate that the Court holds a much narrower view of the appropriate scope of the Clean Water Act (and by extension, other environmental statutes that rely on the Commerce Clause authority). The Court did not specify whether federal jurisdiction over isolated wetlands could be based on a connection to interstate commerce other than migratory bird use. Instead, the Court construed the Clean Water Act to apply only to *navigable* waters. The Migratory Bird Rule was illegal because the Corps used it to extend jurisdiction over *non-navigable*, intrastate, isolated waters. The Court found that the connection between such waters and interstate commerce was not strong enough to justify federal regulation.

The post-SWANCC regulatory landscape requires that the Corps document the facts of each isolated wetland in determining jurisdiction. To establish jurisdiction, the Corps will need to show that isolated *non-navigable* wetlands are somehow connected to navigable waters or tributaries to navigable waters. For isolated *navigable* wetlands or waters, the Corps will need to demonstrate that there is a substantial connection to interstate or foreign commerce. This chapter reviews the legal concepts and limits of Commerce Clause authority, navigable waters, tributaries, and adjacency. The application of these terms by the Corps, and subsequent interpretation by the courts, will ultimately determine the effects of the SWANCC decision. So far, the courts have interpreted the terms *navigable*, *tributary*, and *adjacent* quite broadly. However, the limits of the terms are unclear or controversial, and in light of the SWANCC decision, there might be lawsuits that give the courts the opportunity to refine their interpretation.

INTERSTATE COMMERCE CONNECTIONS

In SWANCC, the Court rejected the assumption that the presence of migratory birds in a wetland was a sufficient nexus to interstate commerce to warrant federal regulation. The Court appeared to employ its *U.S. v Lopez*¹³⁹ analysis of Congress' Commerce Clause

authority. In *Lopez*, the Court held that only commercial or economic endeavors that substantially affect interstate commerce may be regulated by Congress. It was the first Supreme Court decision in 60 years to recognize limits on Congress' Commerce Clause authority.

Applying the *Lopez* two-part test to isolated wetlands in California would probably substantially narrow the isolated wetlands over which the Corps can claim jurisdiction. To be regulated, the wetland must be the site of an economic activity that itself substantially affects interstate commerce. The Court was not persuaded that building a municipal landfill in a wetland that harbored migratory birds met the criteria.

The Court did not define what sorts of activities (or functions) do substantially affect commerce. The Corps' current regulations specify three commerce connections for wetlands, specifically:¹⁴⁰

- Use by interstate travelers for recreation or other purposes;
- Harvest of fish or shellfish that are sold in interstate commerce; or
- Industrial use by industries in interstate commerce.

The navigable isolated wetlands that can meet these criteria are those that serve hunters, bird watchers, or travelers, such as wildlife refuges or duck clubs. Isolated terminal basin lakes (which have no outflow or connection to navigable waters) such as Mono Lake or the Salton Sea could also pass this test because of their recreational uses. Other functions of wetlands, such as flood control, water purification, and erosion control, are not included in the Corps' regulations as connections to commerce. These functions provide benefits locally, or intrastate; although on a watershed or broader basis their effects could reach interstate proportions.

Unknown, obscure isolated wetlands or ephemeral waters that are not used for recreation or commercial purposes would fail the two-prong interstate commerce test. Such wetlands are found throughout California because of its topography and climate. Most of these are non-navigable, such as vernal pools, swales, springs and seeps, and desert playas and oases. Without a demonstrable connection to navigable waters, they will likely be outside the Corps' jurisdiction.

The Court's decision has generated many questions about the interstate commerce nexus for intrastate waters. In particular, for there to be an adequate commercial basis for federal regulation, must the wetlands or waters be identified tourist destinations? Would it suffice if they were part of a landscape that tourists came to see, such as mountain lakes in Yosemite National Park? What about lakes or wetlands that can only be seen by the most intrepid backcountry backpackers? Since the Court gave no guidance on adequate interstate commerce connections, these questions must be answered by future court cases.

NAVIGABLE WATERS CONNECTIONS

In *SWANCC*, the Court ruled that the concept of navigable waters was not without meaning in determining federal authority over wetlands. Although *Riverside Bayview* had greatly reduced the importance of navigability in determining the limits of the Corps'

jurisdiction, the SWANCC decision diminished the *Riverside Bayview* holding. The Court stated in SWANCC:

We cannot agree that Congress' separate definitional use of the phrase "waters of the United States" constitutes a basis for reading the term "navigable waters" out of the statute. We said in Riverside Bayview that the word "navigable" in the statute was of "limited effect" and went on to hold that Section 404(a) extended to nonnavigable wetlands adjacent to open waters. But it is one thing to give a word limited effect and quite another to give it no effect whatever. The term "navigable" has at least the import of showing us what Congress had in mind as its authority for enacting the Clean Water Act: its traditional jurisdiction over waters that were or had been navigable in fact or which could reasonably be so made.¹⁴¹

The SWANCC decision raised a number of difficult questions that might have implications for waters other than isolated wetlands. These include: what are *navigable* waters, *tributaries* to navigable waters, and *adjacent* wetlands? These questions stem from the Court's construction of the Clean Water Act as applying only to navigable waters. Although the Court did not supply answers to these questions, the Corps and the courts will undoubtedly be reviewing the criteria for determining navigability, tributaries to navigable waters, and adjacency to navigable waters. Meanwhile, to assert jurisdiction, the Corps will need to demonstrate that isolated wetlands have some hydrological connection to navigable waters.

Corps' Definition of Navigable Waters

Under Section 404, the Corps has jurisdiction over the discharge of dredged or fill materials into *navigable waters*, which is the term traditionally used to describe federal jurisdiction over waterways. The Clean Water Act defines navigable waters as *waters of the United States, including the territorial seas*. Over the years, the Corps adopted regulations that eventually broadened its jurisdiction far beyond traditionally navigable waters. By 1986, the Corps defined the term *waters of the United States* to include:

*"all **other** waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation, or destruction of which could affect interstate or foreign commerce."¹⁴²*

The Corps further defines *navigable waters* in regulation.¹⁴³ They are "waters that are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce." A determination of navigability applies to the entire waterbody and is not extinguished by events or actions that impede or destroy navigable capacity. To be a navigable water, it is sufficient to show that at any past, present, or future time the water has the potential for commercial use. This includes the historical use by "canoes, bateaux, or other frontier craft," or floating logs in a commercial venture.*

* The Corp's regulatory definition of navigable waters is supported by case law. In its 1985 *Riverside Bayview Homes* decision, the Supreme Court found that the Corps could exercise jurisdiction over non-navigable wetlands adjacent to waters of the United States. In doing so, the Court focused on Congress'

Judicial interpretations of “navigable waters” reveal ongoing controversy in the application of the term. Decisions interpreting past use and susceptibility to use in interstate commerce have yielded conflicting results.¹⁴⁴ In 1982, the Sixth Circuit found a river to be non-navigable although traders in small boats had once used it. Another court found that a river was non-navigable based on its sporadic use and dryness at times, although Corps personnel had navigated the river by canoe. In contrast, another court overturned a Corps determination of non-navigability of a river in Illinois based on the difficulty and infrequency of past use by explorers and traders. According to the court, navigability required only some past use. Similarly, a Fourth Circuit Court in 1984 upheld the Corp’s determination on navigability even though the historic use was quite limited and logs could be floated only during part of the year. The 11th Circuit rejected a creek as navigable on the basis that historical evidence showed that a marsh blocked travel from it to another body of water supporting interstate commerce.

Applying the definition of navigable waters to California’s waters and wetlands leads to some interesting conclusions. Most of California’s rivers and streams have been dammed or diverted. Those that were once major thoroughfares for commerce, such as the Sacramento River and the San Joaquin River, are now interrupted by dams. Some are contained in concrete channels or flow only intermittently, such as the Los Angeles River. But they remain “navigable” waters under the Corps’ definition, most likely because of their former condition. Navigation might be restored to these rivers by removing the dams – an implausible but physically possible event.

The Corps includes *impoundments* of navigable waters within its jurisdiction. Thus, waters behind dikes and dams are jurisdictional. This applies to reservoirs and ponds, although farm and stock ponds are explicitly exempt under Section 404(f) of the Clean Water Act. Salt ponds, such as those found in San Francisco Bay, are also jurisdictional waters. Waste treatment ponds or lagoons are not within the Corps’ jurisdiction, as long as they are designed to meet with Clean Water Act requirements.¹⁴⁵

Tributaries to Navigable Waters

The Corps’ regulations define *tributaries* to navigable waters as “waters of the United States.”¹⁴⁶ As a result of these regulations, which are not changed by SWANCC, the Corps’ jurisdictional authority extends far beyond navigable waters. Courts have generally interpreted the regulation of tributaries to include both navigable and non-navigable waters, as demonstrated by the following federal court holdings:¹⁴⁷

discussion about the scope of the term *navigable waters* when debating amendments to the Clean Water Act in 1977. The Court noted Congress’ concern that a narrow definition of navigable waters would hamper the protection of wetlands. It also observed that by defining *navigable waters* as *waters of the United States* that the term *navigable* must be of “limited import” in determining the Corps’ jurisdiction. Last, the Court noted that Congress “evidently intended to repudiate limits that had been placed on federal regulation by earlier water pollution control statutes and to exercise its powers under the Commerce Clause to regulate at least some waters that would not be deemed ‘navigable’ under the classical understanding of that term.” (*United States v. Riverside Bayview Homes, Inc.*, 474 U.S. 121 at 133.)

- In *U.S. v. Ashland Oil & Transportation Co.*,¹⁴⁸ the Sixth Circuit found that regulation over a non-navigable tributary was within the Commerce Clause power;
- In *U.S. v. Texas Pipe Line Co.*,¹⁴⁹ the Tenth Circuit held that Clean Water Act jurisdiction covered an unnamed intermittent stream that was a tributary to a tributary of a navigable water;
- In *U.S. v. Zanger*,¹⁵⁰ the court held that the discharge of fill into a creek was covered by Section 404 because it was a water of the U.S. in its own right and because it was a tributary of other waters of the United States.

Until March 2001, the courts were split on whether the Clean Water Act covers canals, as tributaries, that are *unconnected* to navigable waters. However, a post-SWANCC decision by the Ninth Circuit, *Headwaters v. Talent Irrigation District*,¹⁵¹ confirmed that irrigation canals are subject to regulation as tributaries. The Court expressly stated that its opinion was not affected by SWANCC as the irrigation canals were not “isolated waters.” According to the Ninth Circuit, the canals receive water from natural streams and lakes, divert the water to streams and creeks, and are connected as tributaries to other waters of the United States. The court also rejected the irrigation district’s argument that the canals are *not* tributaries because during the application of pesticides, the irrigation district closes the gates to the canal to isolate the canal from natural streams.

To summarize, “tributary waters” extend Clean Water Act jurisdiction well beyond navigable waters. Non-navigable, intermittent, and unnamed streams are all within the Corps’ jurisdiction over waters of the United States. This extended web of waterways sets the stage for jurisdiction over the wetlands adjacent to tributaries and navigable waters.

Wetlands Adjacent to Navigable Waters

Wetlands adjacent to all waters of the United States are themselves jurisdictional waters, according to Corps regulations.¹⁵² The Corps defines *adjacent* wetlands as “bordering, contiguous, or neighboring. Wetlands separated from other waters of the United States by man-made dikes or barriers, natural river berms, beach dunes and the like are adjacent wetlands.”¹⁵³ No distance formula has been established to determine whether a wetland is adjacent or not.

The Supreme Court upheld the Corps’ regulation of adjacent wetlands. In *Riverside Bayview*, the Court found that Congress’ evident concern for protecting water quality and aquatic ecosystems suggested that it was reasonable for the Corps to include wetlands adjacent to navigable waters within its jurisdiction. The Court stated that the Corps’ reasoning and judgment about the ecological relationships (e.g., providing habitat, controlling floodwaters, preventing erosion, purifying water) between navigable waters and their adjacent wetlands provided an adequate basis for a legal judgment that adjacent wetlands may be defined as *waters of the United States*. They did not appear to be concerned that the definition might include some wetlands that are not of great importance to the aquatic ecosystem, for in those instances, the Corps could allow development of the wetland for other uses by issuing a permit.

The Court left open the question of what constitutes an *adjacent* wetland. However, federal courts have established several routes to adjacency:¹⁵⁴

- Wetlands bordering navigable waters are adjacent;
- Hydrological connections between wetlands and navigable waters create adjacency, even if the connections are man-made ditches and the wetlands lie some distance from the navigable waters;
- Wetlands that serve as filters and purification devices for navigable waters are adjacent.

As with determinations of *navigable* waters, the courts are not unanimous in supporting broad adjacency criteria. In *U.S. v. Wilson*,¹⁵⁵ the Fourth Circuit held that the Corps did not have jurisdiction over wetlands that lacked direct or indirect surface connections to interstate waters, navigable waters, or interstate commerce. The court also held that the Corps improperly asserted jurisdiction over isolated wetlands that were located up to 10 miles away from a navigable water or tributary because these wetlands did not have a “direct or indirect surface connection” with interstate waters.¹⁵⁶

In *U.S. v. Larkins*, the Sixth Circuit upheld the Corps’ determination that a 404 permit was needed to clear a forested wetland.¹⁵⁷ In *Larkins*, the wetlands at issue were adjacent to Obion Creek, a small non-navigable creek or stream that empties into the Mississippi River many miles away. In a concurring opinion, one judge complained that the landowner failed to raise the issue of whether a wetland adjacent to a non-navigable waterway was properly within the Corps’ jurisdiction. Judge Merritt wrote: “the Corps has now expanded the definition of ‘navigable waterway’ to include any creek or stream or moist area.” He expressed his dismay as follows:

“The Corps’ definition has apparently detached and untied the “wetlands” jurisdiction from any concept of “open waters” or navigable waters. A farmer’ low-lying farmland or a homeowner’s low-lying back yard – adjacent to a small stream or creek but many miles from a navigable waterway – has apparently been converted into government property no longer subject to control or improvement by the owner without government permission. A statute that does not mention “wetlands” has apparently been read to include simply “moist land adjacent to a creek.”

As a result of case law and Corps regulations, there appears to be almost no limit on determining adjacency of wetlands to navigable waters. As long as water can flow from a wetland to a navigable water, adjacency, and therefore Corps jurisdiction, can be established. The outermost limit of adjacency appears to be somewhere in the realm of several miles from navigable waters. Questions about the limits of adjacency to non-navigable waters and “other waters” have not yet been decided by the Supreme Court.

Chapter Five: Beyond Commerce: California's Regulation of Wetlands

In law and policy, California acknowledges the ecological importance of wetlands, as well as the extensive loss of wetlands that has already occurred. For example, the Keene-Nejedly California Wetlands Preservation Act reads, in part:

*The Legislature hereby finds and declares all of the following: (a) that remaining wetlands of this state are of increasingly critical economic, aesthetic, and scientific value to the people of California, and that the need exists for an affirmative and sustained public policy and program directed at their preservation, restoration, and enhancement, in order that wetlands shall continue in perpetuity to meet the needs of the people....*¹⁵⁸

The State Wetlands Conservation Policy, adopted in 1993, begins with the following:

California's wetland resources are an integral part of our State's rich biodiversity. Wetlands provide fish and wildlife habitat along with numerous other benefits such as flood control, water quality enhancement, groundwater recharge, and educational and research opportunities. Historically, unacceptable losses in acreage have seriously diminished not only the quantity but the quality of these essential elements of our environment....

The state has a wide range of environmental laws protecting the coast, water quality, and fish and wildlife. Despite its complex jurisdictional arrangement, Section 404 has become a comprehensive program for regulating land use and protecting wetlands. It defines wetlands, instructs the Corps on how to delineate the wetlands, and guides the Corps in evaluating project applications. Clear standards exist for what can and cannot be placed into the waters of the United States. The 404(b)(1) guidelines explicitly acknowledge the functions, values, and relative scarcity of wetlands. Further, the guidelines include a rebuttable presumption that alternative locations exist for non water-dependent projects, which sets a high threshold for obtaining a permit to place fill in wetlands. That standard requires that project proponents avoid, minimize, and mitigate impacts to wetlands.

Because of the 404 program, and state certification under Section 401, California has not needed to develop a separate, comprehensive wetlands regulatory program. Now, however, the Supreme Court has ruled that certain types of wetlands fall outside the 404 program. For those isolated wetlands affected by SWANCC, there is no comparable state regulatory program that could fill the gap.

This chapter will review California's wetlands policies and other environmental laws, and assess how they apply to isolated wetlands.

KEENE-NEJEDLY CALIFORNIA WETLANDS PRESERVATION ACT

The California Wetlands Preservation Act of 1976¹⁵⁹ states that the remaining wetlands of the State are of "increasingly critical economic, aesthetic, and scientific value to the people of California, and that there is a need for an affirmative and sustained public

policy and program directed at their preservation, restoration, and enhancement” to continue to meet the needs of the people.¹⁶⁰ Under the Act, the Department of Parks and Recreation and the Department of Fish and Game may acquire property to protect, preserve, restore, or enhance wetlands. Either department may also enter operating agreement with cities, counties, or districts to manage and control wetlands thus acquired.

In contrast to the Clean Water Act, the Wetlands Preservation Act does not define wetlands in relation to “navigable” waters. The Wetlands Preservation Act defines wetlands as “streams, channels, lakes, reservoirs, bays, estuaries, lagoons, marshes, and the lands underlying and adjoining such waters, whether permanently or intermittently submerged, to the extent that such waters and lands support and contain significant fish, wildlife, recreational, aesthetic, or scientific resources.”¹⁶¹

1993 WETLANDS CONSERVATION POLICY

In 1993, Governor Wilson issued the California Wetlands Conservation Policy, which established a goal of “no net loss of wetlands.”^{*} To achieve this goal, the policy emphasized developing partnerships with landowners and cooperative planning efforts as the primary focus of wetlands conservation and restoration. The policy acknowledged that the federal-state system of wetlands regulation was not perfect, and included several proposals for improving the efficiency and flexibility of the process. In particular, programs in the Central Valley, the Bay Area, and Southern California were to develop coordinated planning processes to conserve wetlands on a regional basis. One of the proposals was for the Corps to delegate the 404 program to the state, and suggested that this be done on a pilot basis in the San Francisco Bay region. However, it did not suggest a major departure from the existing arrangement of wetlands regulation under Clean Water Act Sections 404 and 401.

According to a joint Resources Agency and California Environmental Protection Agency report issued in December 1998, California was the first state in the nation to achieve its overall goal of no net loss of wetlands for the years 1996 and 1997.¹⁶² The gain of more than 15,000 acres resulted from restoring historic wetlands that no longer had wetlands values and through creating new wetlands habitat. Most of the restoration efforts were achieved through state agency partnerships with private landowners, non-governmental organizations such as Ducks Unlimited, The Nature Conservancy, and The Trust for Public Land.

Although several other elements of the 1993 Wetlands Plan have been implemented, others have not. The status of the various Plan elements are as follows:

- The inventory of wetlands in the Central Valley, San Francisco Bay Area and Delta, vernal pool habitats in the Central Valley, and coastal wetlands in southern California was completed. The *Inventory and Assessment of Vernal Pool Habitats in California* maps and describes the 17 distinct vernal pool regions in the state, identifies the types of pools, and identifies the rare, threatened, and endangered species found within

^{*} The State Wetlands Conservation Policy is available on-line. Please see the Reference Chapter at the end of this report.

each region. It also describes viability of the region's pools, restoration opportunities, and the extent of vernal pool losses. The results of these efforts are available on the DFG website.¹⁶³

- Funding and federal EPA support for the statewide inventory has become available only recently, although it may now be jeopardized by California's budget problems.
- There is no funding for the wetlands unit within DFG, and there are no longer any staff assigned to the wetlands inventory project.
- Efforts to delegate the Corps' 404 program on a pilot basis to the San Francisco Bay Regional Board are on hold.
- The Coastal Conservancy, Department of Conservation, and Wildlife Conservation Board continue efforts to develop conservation easements and purchase wetlands for restoration and preservation.
- The 1993 Wetlands Plan called for developing support for mitigation banking. AB 642 (Lempert, Chapter 950, Statutes of 2000) requires DFG to develop a database of all wetlands mitigation banks and report to the Legislature by January 2002 on the status of mitigation banking in California.*
- Regional coordinated wetlands planning efforts continue in the Bay Area (Bay Area Wetlands Planning Group) and in southern California (Southern California Wetlands Recovery Project).
- Integration of wetlands policy and planning with other environmental issues will be achieved through AB 2286 (Davis and Lempert, Chapter 964, Statutes of 2000). AB 2286 requires the Resources Agency to update its wetlands inventory and prepare a report to the Legislature by January 2003. The report must include a plan for acquisition, protection, preservation, restoration, and enhancement of wetlands, including funding requirements. State and federal funding for the inventory became available last summer, and the Resources Agency has begun to develop an approach for the inventory.

CALIFORNIA ENVIRONMENTAL PROTECTION STATUTES

Most California environmental protection statutes were passed in response to specific public concerns, such as reducing water pollution, protecting streams from diversions, preventing fill in San Francisco Bay, protecting the coast from excessive development, and the public's demand for information about the environmental impacts of development. The regulation of wetlands was almost incidental to these other concerns, with the exception of the legislation to protect the Suisun Marsh.

Several California statutes apply to wetlands in specific locations, but none would take the place of the 404 program for the isolated wetlands affected by SWANCC. While the Coastal Act and the Suisun Marsh Act include strong protection for wetlands, their jurisdiction is limited to the coastal zone and the Suisun Marsh (located in the center of

* As of late January 2002, the report has not been released and is undergoing internal review at DFG.

the San Francisco Estuary). Neither of these statutes would affect vernal pools more than 5 miles inland from the coast. Intermittent streams and ephemeral streams might be regulated by the DFG under the Streambed Alteration Agreement, but swales and vernal pools would not fall within DFG's definition of a stream.

The California Environmental Quality Act (CEQA) does not regulate wetlands per se, although it requires that environmental impact reports be prepared for projects with significant environmental impacts. CEQA also requires that these impacts be mitigated (where possible). While CEQA requires public review of projects that would affect wetlands, it is primarily concerned with public process and disclosure of potential impacts, rather than wetland protection. CEQA does not recognize wetlands as a resource that merits special protection, as does the 404 program.

The state's water quality law has broad authority to regulate all discharges of wastes into any water of the state. This authority is broad enough to regulate all wetlands, including isolated wetlands. However, the state has not exercised this authority, as the Corps has occupied the field when it comes to wetlands regulation. As will be discussed below, there are some significant administrative hurdles to using Porter-Cologne as a wetlands regulatory statute.

Porter-Cologne Water Quality Control Act

Only California's water quality protection law is broad enough to regulate the isolated wetlands affected by SWANCC. Under the Porter-Cologne Water Quality Control Act,¹⁶⁴ the State Water Resources Control Board (SWRCB) and nine Regional Water Quality Control Boards (Regional Boards) protect water quality by regulating the "discharge of wastes" into "waters of the state." This authority encompasses the discharge of almost any man-made material, or any material resulting from human activity, into any water located within the State of California.

Under Porter-Cologne, any person discharging waste that could affect the waters of the state, or proposing to do so, *must* file a report of discharge to the appropriate Regional Board.¹⁶⁵ This mandate applies to all individuals, agencies, and corporations. The SWRCB must respond to the report by issuing a permit (known as "waste discharge requirements" or WDRs) or issuing a waiver.¹⁶⁶ Waivers may be issued on an individual basis or in compliance with the Regional Board's waiver policy, and generally contain conditions to ensure that the discharger complies with state water quality standards.

Expansive definitions of the terms "waste" and "waters of the state" make the Porter-Cologne Act a powerful tool for regulating activities that affect any and all waters in California, including wetlands. Waste is defined to include "sewage and any and all other waste substances...associated with human habitation, or of human or animal origin,...or from any producing, manufacturing, or processing operation of whatever nature..."¹⁶⁷ In contrast to the Clean Water Act approach, which defines waters of the United States by their relationship to navigation, Porter-Cologne defines waters of the state as any water within the boundaries of the state.¹⁶⁸ Thus, the placement of fill material in a wetland can be regulated as a discharge of waste into a water of the state.

Although the authority exists under Porter-Cologne, the state rarely issues WDRs or waivers for discharges to wetlands. Until recently, the SWRCB also opted to waive its

authority under Clean Water Act Section 401 to certify that 404 permits complied with state water quality standards. This was due in part to the perception that the Corps was already regulating discharges to wetlands, so that certification by the SWRCB was unnecessary and unwarranted. Further, until the early 1990s, there were no staff at the Regional Boards to review Corps permits for compliance with state water quality standards. In addition, the Regional Boards lacked the authority to issue certifications, so that the SWRCB had to review each project before issuing a certification. The SWRCB waived certification so that the Corps could issue its permits in a timely manner.

In June 2000, the SWRCB adopted new regulations that authorize the Regional Boards to issue water quality certifications under Section 401. In addition, the regulations require the Regional Boards to issue either a “standard certification,” or a “conditional certification” that contains specific conditions to address project impacts. As a result, all projects receiving a permit from the Corps must also be reviewed by the Regional Boards to receive the Section 401 water quality certification. The Regional Boards also retain the authority to waive or issue WDRs under Porter-Cologne.

On January 25, 2001, the SWRCB issued a memorandum describing the effects of SWANCC and alternative avenues available to the Regional Water Quality Control Boards for regulating isolated wetlands.^{*} The memorandum, addressed to the members of the SWRCB and executive officers of the Regional Boards, states that regardless of the ultimate impact of the SWANCC decision, the state retains its independent authority to regulate discharges to waters that are no longer considered waters of the United States. According to the memo, the thrust of the Supreme Court’s ruling is that regulation of inland, isolated waters is and should be primarily an activity of the state rather than the federal government. It concludes by noting that the state and federal “no net loss” of wetlands policies are still in effect, and suggests that the Regional Boards should “consider that regulating any discharges of waste to waters that may no longer be subject to the Corps’ jurisdiction is both authorized and justified.”^{†169}

Although California’s water quality law is broad enough to encompass the regulation of isolated intrastate wetlands, it is implemented through a highly decentralized administrative structure. The SWRCB develops statewide water quality control plans, and the nine Regional Boards develop regional water quality plans, called “basin plans.” These plans specify the water quality standards that are to be maintained through the regulatory system. Each basin plan contains water quality standards that apply to the water bodies and water quality problems within the region. Water quality standards consist of designated “beneficial uses,” which are the purposes for which water can be used, and “objectives,” or criteria, that must be met to maintain the beneficial use. The SWRCB and Regional Boards have established 24 beneficial uses, including drinking water supply, recreation, industrial supply, habitat for endangered species, wetlands habitat, migration of aquatic organisms, etc.[†] The water quality standards are the basis for regulating discharges of pollutants into the waters of each region.

^{*} The SWRCB legal memorandum is available on-line. Please see the Reference Chapter at the end of this document.

[†] Beneficial uses are designated by abbreviations in all capital letters, e.g.: municipal domestic supply (MUN); industrial supply (IND); wetland habitat (WET); warm freshwater habitat (WARM), etc.

The Porter-Cologne Act does not require the Regional Boards to adopt wetlands policies in their basin plans, although each basin plan must be consistent with SWRCB statewide plans and policies.¹⁷⁰ The SWRCB does not have a statewide wetlands policy.

Since last January, the SWRCB has not issued any further directives to the Regional Boards regarding the regulation of isolated wetlands. Each Regional Board is taking an “ad hoc” approach to informing landowners and the regulated community about the legal requirement to file a report of waste discharge for projects no longer regulated by the Corps. The Corps now routinely informs the Regional Boards of projects where the Corps determines that it has no jurisdiction. However, there is concern at the SWRCB and Regional Boards that there is not complete communication and coordination between all the agencies involved in wetlands regulation, including local governments.¹⁷¹

Just how the Regional Boards will go about regulating isolated wetlands is unclear. The nine Regional Boards have widely varying policies for wetlands. This is not surprising, due to the distinctive geographic and hydrologic conditions, as well as different water quality priorities within each Region. Some examples follow:

- In 1993, the Los Angeles Regional Board inventoried major regional wetlands and used the information to update the Basin Plan in 1994. The Regional Board has a wetlands beneficial use designation for “uses of water that support wetland ecosystems.”* Many inland surface waters have the “wetlands” beneficial use, and the Regional Board highlights the significant coastal wetlands in its Basin Plan. The Board has also adopted narrative water quality objectives for wetlands to protect hydrology and habitat functions. However, the implementation section of the Basin Plan does not address wetlands, other than noting that the EPA has specified nonpoint source pollution management measures to protect wetlands in coastal waters. It does not describe the Section 401 process or its application to wetlands.
- The Central Coast Regional Board does not use a “wetlands” beneficial use designation in its Basin Plan. The Plan does not address wetlands in its implementation chapter, and it does not describe the Section 401 process.
- In the Colorado River Basin, which has many intermittent streams and playas that are affected by SWANCC, the Regional Board does not address wetlands in its Basin Plan. The Regional Board has intermittent beneficial use designations for RARE (for rare or listed species), WILD (wildlife habitat), and WARM (warm freshwater habitat) for specified streams and lakes. However, DFG must substantiate the presence of special status species on a case-by-case basis. The Region has no wetland policy other than the Section 401 certification requirement.
- The Santa Ana Regional Board has designated beneficial uses for a general category of wetlands, but has no separate policies for implementation in its Basin Plan.
- In a region with significant amounts of managed wetlands, the North Coast Regional Board does not designate beneficial uses for wetlands in its Basin Plan. The Plan does not specifically address wetlands.

* This beneficial use designation appears to be unique to the Los Angeles Regional Board.

- For the Sacramento and San Joaquin River Basins, the Central Valley Regional Board notes that they intend to identify the surface waters subject to the RARE beneficial use category in future updates of their Basin Plan. Currently, there are no beneficial uses for vernal pools, which are a common geographic and hydrological feature of this region. The Plan does not have a wetlands implementation policy and it does not describe how the Section 401 process applies to wetlands.
- For the Tulare Lake Basin Plan, the Central Valley Regional Board does not have wetlands beneficial use designations, nor specific implementation policies for wetlands.*

Only two of the nine Regional Boards, the San Francisco Bay and Lahontan Regions, have adopted specific policies for wetlands in their Basin Plans. Both have a section on wetlands in their chapters describing the beneficial uses of waters and the implementation of the Basin Plan. Both have designated beneficial uses for wetlands, such as WILD (for waters that support wetland ecosystems and wildlife) and RARE (for waters that support habitats for listed species).

- The San Francisco Region has incorporated the 404(b)(1) guidelines (with standards for fill in wetlands and requirements to avoid, minimize, and mitigate unavoidable impacts to wetlands) by reference into their implementation policies, and stated that these guidelines will be applied to applications for waste discharges into wetlands. The San Francisco Region also uses the same permit application as the Corps.
- The Lahontan Region incorporated the language of the 404(b)(1) guidelines directly into their Basin Plan, which ensures that these guidelines will apply even if the federal agencies change the guidelines.

One of the significant differences between the 404 program and the state water quality program is the 404 program's recognition of the functions and values of wetlands. In evaluating proposed projects, the Corps must follow the 404(b)(1) guidelines, which require the Corps to protect those functions and values. Under Porter-Cologne, the wetlands habitat (WET) beneficial use designation recognizes the functions of wetlands (water quality enhancement, flood control, etc.) as well as the habitat provided by wetlands. However, only the Los Angeles regional board has applied the WET designation. Without this recognition of the overall importance and function of wetlands, the Regional Boards are limited to viewing wetlands as a tool for water quality improvement, rather than important ecosystems unto themselves.

Four additional difficulties arise with the regulation of isolated wetlands by the Regional Boards:

- First, landowners and other project proponents are accustomed to dealing with the Corps for wetlands regulation. They do not know that the Porter-Cologne Act requires them to file the report of waste discharge for all waters and wetlands in

* The Tulare Lake Basin is the drainage area of the San Joaquin Valley south of the San Joaquin River. As part of the Central Valley, it provides important wetland habitat for migratory waterfowl. Because of its topography and soils, the basin has no surface water outflows, except during years of extreme rainfall. Wetlands in the Tulare Lake Basin may be excluded from Corps jurisdiction by SWANCC.

California. Many believe that if they don't need to get a 404 permit, then no other regulatory review is required for wetlands. As a result, some projects may be falling through the cracks, and either intentional or inadvertent disregard of state regulatory requirements could lead to the destruction of isolated wetlands.

- Second, the Corps uses nationwide, or general, permits for the majority of the projects within its jurisdiction. The SWRCB would need to develop similar permits, which is complicated by the environmental impact review requirements of CEQA.
- A third problem is that of resources. The SWRCB and Regional Boards lack wetlands permitting budgets and staff. They would need additional resources to develop general permits and take over the regulatory program for isolated wetlands.
- Fourth, even if the Regional Boards had adequate staff to regulate wetlands, they lack the funds and resources to develop wetlands regulatory policies and amend their Basin Plans to reflect these new policies. Because of the state's budget problems, it might be difficult to obtain additional funds for new programs at the SWRCB.

Suisun Marsh Protection Act

The Suisun Marsh represents almost ten percent of the remaining wetlands in California. It is the only wetland region in California with a statute dedicated to its protection. The Suisun Marsh consists of more than 55,000 acres of tidal and seasonal marsh, and 30,000 acres of bays and sloughs. Located just east of San Francisco Bay, the Suisun Marsh is where salt water meets and mixes with the fresh water of the Sacramento/San Joaquin Delta. It is a transition zone between salt- and fresh-water habitats, and creates a unique diversity of fish and wildlife habitats.

Passed in 1977, the Suisun Marsh Preservation Act¹⁷² recognizes the important wildlife habitat value of the Suisun Marsh. It called for the San Francisco Bay Conservation and Development Commission (BCDC) to prepare a Suisun Marsh Protection Plan for the "long-term conservation, use, and management of the natural, scenic, recreational, and manmade resources of the marsh." Implementation of the Plan relies on a Local Protection Program developed by Solano County, and administered through county land use planning procedures. However, the BCDC retains appeal rights and is charged with continued state planning and management of the Suisun Marsh.¹⁷³

The Local Protection Plan includes standards for any activity or development in the marsh, as well as a management program carried out by the Suisun Resource Conservation District. Projects within the Suisun Marsh must obtain a permit from the County and, in certain circumstances, from BCDC.

The California Coastal Act

The California Coastal Commission has jurisdiction over wetlands in the coastal zone under both the California Coastal Act of 1972 and the federal Coastal Zone Management Act of 1976.¹⁷⁴ In general, the coastal zone extends roughly 1,000 yards inland from the

mean high tide line (about 5/8 of a mile). Projects within the coastal zone must obtain a permit from the Coastal Commission, or from the local government if it has an approved Local Coastal Plan (LCP).

Under the Coastal Zone Management Act, federal projects within the coastal zone also must be consistent with the California coastal zone management program. This program consists of the Coastal Act, LCPs, and the Coastal Commission's wetlands policies. Thus, federal agencies or applicants for federal permits or funding, including Section 404 permits, must also obtain the Commission's concurrence that their projects are consistent with the state's coastal management plan.

The Coastal Commission allows wetlands to be filled only for water-dependent uses when no feasible upland alternative exists. Water dependent uses include ports and marinas, and the Commission requires that impacts be minimized or avoided. The Commission has issued statewide interpretive guidelines for wetlands, which are designed to give guidance to permit applicants and local governments about protection, restoration, and mitigation efforts in wetlands and adjacent areas undergoing development. These guidelines include technical definitions for wetlands and riparian habitats, and describe permitted development and conditions in these areas. The guidelines also define wetlands in terms of hydric soils, hydrology, and hydrophytic plant species, which are the criteria developed for wetlands identification by the U.S. Fish and Wildlife Service.

The Fish and Game Code

The Department of Fish and Game (DFG) is responsible for conserving and protecting California's fish, wildlife, and native plant resources. Under Sections 1601-1603 of the Fish and Game Code, projects that would adversely affect a river, stream, or lake must have a Lake or Streambed Alteration Agreement from DFG. This requirement applies to any person, business, state or local government agency, or public utility. It does not apply to the federal government.

The Fish and Game Code requires that project proponents notify DFG of their intended project. The notification applies to activities that would divert, change, or obstruct the flow of a river, stream, or lake; use material from a streambed; or result in deposition of debris, waste, or other material into a river, stream, or lake. The purpose of the notification and Agreement is to protect existing fish and wildlife resources that may inhabit the water body. Once DFG receives the notice, it has 30 days to review the notice and determine which measures are necessary to protect any fish and wildlife resources. It then negotiates an agreement with the project proponent to incorporate appropriate protective measures into the project. There is no opportunity for public involvement or review in the negotiation.

DFG defines its jurisdiction to include streamside habitats that may not qualify as wetlands under the Corps' definition. The requirement to notify DFG of proposed activities covers any river, stream, or lake that flows at least intermittently. Thus, DFG's jurisdiction may be broader than that of the Corps and include ephemeral streams, desert washes, and water courses with a subsurface flow. It may also apply to any work

undertaken within the flood plain of a body of water. It might not cover vernal pools, swales, and desert seeps and springs.

Another provision in the Fish and Game Code protects wetlands. Under Section 5650, it is illegal to “deposit in, permit to pass into, or place where it can pass into the waters of the state...any substance or material deleterious to fish, plant life, or bird life.” This prohibition is not accompanied by a regulatory program, but is used to enforce prohibitions on illegal fill or streambed alterations.

The McAteer-Petris Act

In 1965, the McAteer-Petris Act created the San Francisco Bay Conservation and Development Commission (BCDC) and called for preparation of *The San Francisco Bay Plan*. Under the McAteer-Petris Act, fill in the Bay can be permitted only for water-oriented uses, and only when no alternative upland location exists. Specific requirements for permits to place fill in the Bay or construct projects on its shore are spelled out in the *Bay Plan*. This regulatory prohibition on fill applies to the salt ponds, or managed wetlands, that fringe the Bay. The “baylands” (areas that used to be tidal marsh or mudflat, that were diked off from the Bay and are now hayfields or urban areas) are not regulated by BCDC. The baylands and managed wetlands are generally considered to be the best opportunities for restoring marshes, mudflats, and seasonal wetlands in the San Francisco Bay.

The San Francisco Bay is part of the California coast, and as such, is included within the jurisdiction of the federal Coastal Zone Management Act. Just as with the Coastal Commission, federal projects or applicants for federal grants or approvals must also obtain approval from BCDC that their projects are consistent with the *Bay Plan* and the McAteer-Petris Act.

California Environmental Quality Act

The California Environmental Quality Act (CEQA) requires that environmental impacts be documented and considered, as does the National Environmental Policy Act (NEPA). CEQA requires that proponents disclose a project’s significant environmental effects and avoid, minimize, or mitigate harmful impacts on a broad range of natural resources, including wetlands. CEQA applies to projects proposed by or requiring approval by state or local agencies. DFG, the Coastal Commission, BCDC, and other state agencies with authority over wetlands or other natural resources must be notified when a CEQA document is prepared for a project. These agencies generally comment on the CEQA documents, and recommend changes to the project or mitigation necessary to protect the resources.

CEQA guidelines¹⁷⁵ identify “significant effects” on the environment as adverse changes in any of the physical conditions within the area affected by a project. This includes changes to the land, air, water, flora, fauna, minerals, ambient noise, and objects of historic or aesthetic significance. As part of the CEQA environmental review, an environmental checklist must be prepared by the lead agency, indicating whether the project might have significant effects on a number of resources, including biological resources. If the environmental checklist indicates that there might be a significant adverse impact on biological resources, then further documentation is required. This

could take the form of an Environmental Impact Report or other CEQA document. The lead agency, which is responsible for preparing and certifying the CEQA document, determines whether the environmental impacts and associated mitigation measures are acceptable. State agencies or local governments can be lead agencies, and they make their determination on a project based on their individual agency's policies.

Local Wetland Regulations

Cities and counties can use their planning and land use control authority to protect or regulate wetlands. Local wetlands programs vary widely throughout the state. CEQA requires local governments to mitigate significant environmental impacts of the projects they approve, and thus creates a role for local governments in wetlands regulation. Tools used by local governments to regulate wetlands include general plans, specific plans, zoning, and development agreements.

The degree to which local government can step in to protect isolated wetlands depends on the community. Wetlands protection ordinances vary widely across California's 57 counties and 476 cities.

Chapter Six: The Impact of SWANCC on California's Wetlands

The effect of the SWANCC decision on wetlands in California cannot be fully described at this time. Other than the legal memorandum issued in January 2001, the Corps has not yet issued new guidance on post-SWANCC jurisdictional issues. It may be that the Corps will continue to regulate many isolated wetlands by establishing substantial connections between isolated wetlands and navigable waters or interstate commerce. As long as those connections withstand legal scrutiny, then the SWANCC decision might have relatively little impact. On the other hand, the Court's discussion of navigable waters and the proper role of the federal and state governments in wetlands regulation suggests that it will look unfavorably upon attempts to create what it might perceive as inappropriate or inadequate connections between isolated wetlands and interstate commerce and navigable waters. It is likely that the Bush administration would favor a reduced federal role in wetlands regulation, and leave it to the states to decide whether to take on a broader role in regulating wetlands.

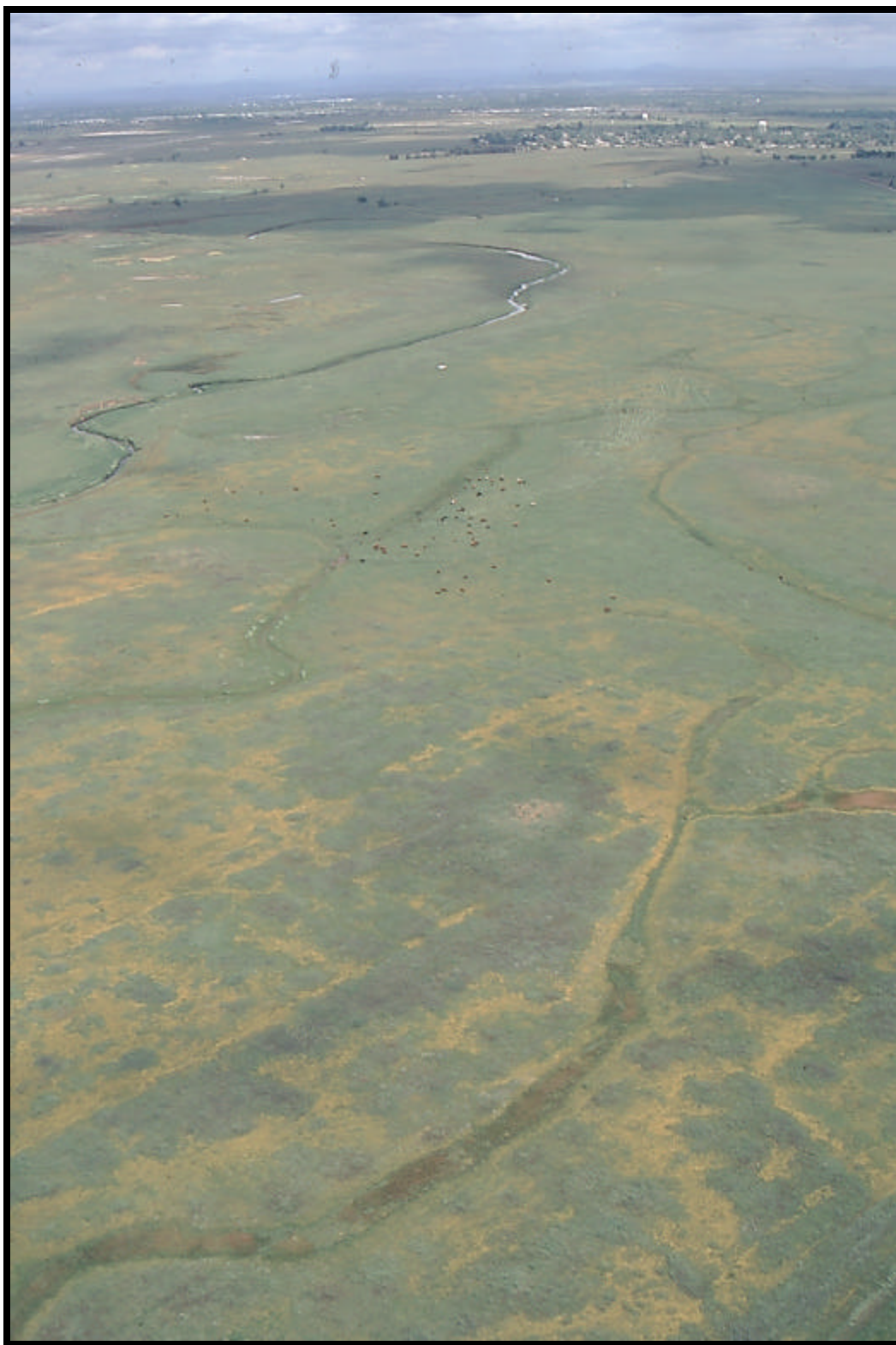
This chapter discusses how the SWANCC decision might affect federal jurisdiction over isolated wetlands in California. It looks at issues of navigability, adjacency, and tributary waters, as well as interstate commerce connections, and then evaluates how these concepts might affect jurisdiction over California's intermittent and ephemeral streams, vernal pools, swales, terminal basins, desert playas, and the like. It also evaluates how the effects of the presence of endangered species affects federal regulation of isolated wetlands.

WHAT'S IN AND WHAT'S OUT OF 404 JURISDICTION?

The California wetlands most likely affected by the SWANCC decision include vernal pools and swales, ephemeral or intermittent streams and rivers, desert washes, small lakes, terminal basins, and snow-melt ponds. The SWANCC decision may also affect waters that have been physically severed from navigable waters, such as diked wetlands and managed wetlands, and perhaps interrupted tributaries, such as the lower San Joaquin River.

Vernal Pools and Ponds

After SWANCC, the Corps' jurisdiction over vernal pools will depend on whether the Corps can establish surface water connections to navigable waters. Some vernal pools are connected to navigable waters by swales or intermittent streams. During winter and spring, such vernal pools can fill and spill over into swales, which flow into tributaries to navigable waters. Vernal pool complexes connected by swales and tributary creeks occur frequently in the Central Valley, as shown in the following photographs.



Vernal Pools and Swales, Morrison Creek, eastern Sacramento County. Photo courtesy of Eva Butler. (The photo shows a typical Central Valley vernal pool complex, containing intermittent streams, swales and vernal pools.)



Vernal Pools and Swales, Mather Field, Sacramento County. Photo courtesy of Eva Butler. (The photo shows a Central Valley vernal pool complex, with the visible lines of swales winding among the small hills, known as mima mounds, and low-lying vernal pools.)

The proposed site of the University of California at Merced is located in an area of vernal pool complexes similar to those shown above at Mather Field. The Corps continues to assert jurisdiction over a 1,000-acre complex of vernal pools at the proposed site. According to the Corps, these pools are directly connected to navigable waters (the San Joaquin River) by swales. The Corps considers the swales to be tributaries of navigable waters. Under this approach, the Corps retains jurisdiction over most of the vernal pools at the proposed U.C. Merced site.

Although the Corps' regulations define intermittent streams as "waters of the United States,"¹⁷⁶ the assertion of jurisdiction over swales as tributary waters might be inconsistent with how the Corps defines its jurisdiction over such waters. Swales and overland flows have no streambed, scouring line, or other ordinary high water mark. Corps regulations define the geographic extent of lakes and rivers as the "entire water surface and bed of the water body, up to the high water mark."¹⁷⁷ Lacking a high water mark, swales may not be "waters of the United States." On the other hand, swales are streams that flow intermittently, and intermittent streams are "waters of the United States." Evidence of the intermittent flow may suffice to prove the hydrological connection during the dry season.

Recently, the 9th Circuit Court issued its ruling in *Borden Ranch v. U.S. Army Corps of Engineers*, which appears to undermine the Corps' approach to regulating vernal pools via swales. In *Borden Ranch*, the court noted that the SWANCC decision now precludes

Corps authority over the vernal pools in dispute in the case. As a result, the court held that the Corps could require a permit for deep ripping in swales, but not in the vernal pools on the property in question. The court did not find a connection between vernal pools and swales sufficient to establish jurisdiction over the pools.

Some vernal pools without surface connections to tributaries of navigable waters or that are not used in interstate commerce (fishing, industrial, recreational uses) may be outside Clean Water Act jurisdiction. Several examples of such pools may be found in northern Santa Barbara County, as shown in the following photographs.

Along Highway 101 just south of Los Alamos, isolated ponds and vernal pools dot the landscape, occurring at the bottoms of rolling hills, but unconnected to a stream, creek, or canal.



“Round Pond,” Flores Ranch, west of Highway 101, Santa Barbara County. Photo by author. (Round Pond is a vernal pond and is known habitat for various endangered species.)

Just east of Santa Maria, vernal pools near Dominion Road and Orcutt Garvey Road appear in a relatively flat landscape dominated by row crops and oil derricks. Although the Santa Maria River is located several miles east of the wetlands area, Bradley Canyon and Route 176 separate the vernal pools from the river. Santa Maria River flows intermittently.



Vernal Pool, Dominion Road, east of Santa Maria, Santa Barbara County. Photo by author. (Although this area generally drains to the Santa Maria River, Dominion Road bisects many of the remaining vernal pools.)

West of Santa Maria, a large complex of vernal pools can be found along Betteravia Road, in low-lying pastures that flood up to the roadway in the spring.



Vernal Pool landscape at Betteravia Road, west of Santa Maria, Santa Barbara County. Photo by author. (The Casmalia hills are visible in the distance. Curly dock, the tall dark plant, is a common indicator of wetland areas.)

Isolated Wetlands and Intermittent and Interrupted Streams

Because the SWANCC decision did not rescind the Corps' regulations governing "waters of the United States," wetlands adjacent to intrastate streams (including intermittent streams) that are tributary to navigable waters are still within the Corps' jurisdiction. If the Corps can demonstrate a connection between an isolated wetland and a tributary to navigable waters, then the wetland would be jurisdictional because it is adjacent to a water of the United States.

Some isolated wetlands are connected to intermittent streams and creeks. Such wetlands could be regulated if the Corps can show jurisdiction over the intermittent waters. This generally requires that the stream have a discernable bed, high water mark, or other indication of regular inundation.

Some wetlands, such as those in the following three photos in the eastern foothills of the San Rafael Mountains in Santa Barbara County, have formed in drainages that formerly contained creeks. Erosion in the hills has produced a series of colluvial^{*} fans, which

^{*} "Colluvium" is defined as any loose, heterogenous sediment, deposited by rainwash, sheetwash, or slow continuous downslope creep, usually at the base of a cliff or slope.

block the stream that flowed through the valley at the turn of the century. Springs and seeps create a vernal marsh in the valley. The marsh consists of a series of separate vernal ponds, which contain wetland vegetation as well as clam shrimp and other small mollusks. Such wetlands might now be outside of Corps jurisdiction.



Sedgwick Ranch, Santa Barbara County. Photo by author. ("Colluvial fans" formed at the mouths of lateral drainages have filled in a former stream that flowed in this valley.)



Vernal pond, Sedgwick Ranch, Santa Barbara County. Photo by author. (One of a series of ponds that have formed as a result of the colluvial fans in the valley. During the wet seasons these ponds attract feral pigs that enjoy these classic “hog wallows.”)



Clam shrimp in dried vernal pond, Sedgwick Ranch, Santa Barbara County. Photo by author.

In California, it is not uncommon for streams to disappear underground, to re-emerge at a later point. In developed areas, streams are placed into culverts for flood control reasons, but some streams are naturally intermittent. There is a debate within the Corps concerning jurisdiction over wetlands adjacent to streams that disappear only to re-emerge elsewhere. The Corps does not have jurisdiction over sub-surface water, but has asserted jurisdiction over isolated wetlands where the above-ground portion of the stream is not far away. If the stream remains underground for a long distance, the Corps will regard the wetland as isolated. No official guidance instructs Corps staff as to what constitutes a “long distance” – staff generally rely on their best professional judgment in determining jurisdiction over intermittent and interrupted streams.¹⁷⁸

Currently, the Corps continues to assert jurisdiction over wetlands adjacent to the headwaters of culverted and intermittent streams that ultimately drain into navigable waters. Such isolated wetlands are found on the fringes of urban areas. Examples of these wetlands can be found in San Diego County on the Otay Mesa.

Vernal pools on the Otay Mesa in San Diego can flow overland during wet years to intermittent streams in Spring Canyon or Dennery Canyon. The mesas are highly disturbed by grazing, off-highway vehicle use, and residential development. However, vernal pools still exist, containing threatened and endangered plant species (such as Otay tar plant), as well as wetland indicator species. Otay Mesa is also habitat for the federally listed quino checkerspot butterfly. During wet years, water from the vernal pools can flow into Spring Canyon (gnatcatcher habitat), and on to the Tijuana River. Water in Dennery Canyon flows to the Otay River. Both rivers eventually flow to the ocean. If in the future, the underground culverts are deemed sufficient to remove 404 jurisdiction from the canyon streams, then the wetlands at the headwaters would also be outside the Corps’ jurisdiction.



“J-14” Pool, Otay Mesa, San Diego County. Photo by author. (The pool, to the right of the fence, is one of the few remaining undisturbed vernal pools on the Otay Mesa. It has been fenced off by the Border Patrol. It contains the Otay Tarplant, a federally threatened species.)

Development in San Diego County has carved corridors through the mesas. Many of the remaining vernal pool wetlands are physically separated from drainages that remain within Corps jurisdiction. One such pool is protected by Caltrans, at the junction of Interstate 15 and Route 52. The pool was saved during highway construction as mitigation for the loss of vernal pools. The pool is perched above a retaining wall overlooking Interstate 15.



Caltrans Vernal Pool Mitigation Site, San Diego County. Photo by author.

In other parts of San Diego County, development has encircled vernal pools, cutting them off from drainages that remain in federal jurisdiction. One such vernal pool is shown below, hemmed in on three sides by roads. Although it is fragmented and isolated, the County will not permit development of the pool, which was set aside as mitigation for development of the surrounding businesses.



“Ford Preserve,” Miramonte Road, San Diego County. Photo by author. (This photo shows a remnant vernal pool on a mesa. The pool is surrounded by developed areas, which diminish the quality of habitat in the pool.)

Other vernal pools in San Diego County are not likely to be affected by the SWANCC decision. The Corps will continue to assert jurisdiction over such pools because they have surface water connections to intermittent drainages. One area of such vernal pools is a parcel recently acquired from the Navy by the San Diego National Wildlife Refuge, which contains many undisturbed vernal pools. Development surrounds the 600-acre “Teacup” parcel. However, drainages within the parcel connect to the San Diego River.



“Teacup Parcel” Vernal Pool, San Diego National Wildlife Refuge. Photo by author.

Managed Wetlands

Freshwater marsh and managed wetlands may be affected by the SWANCC decision. Managed wetlands, which are primarily duck clubs and wildlife refuges, rely on pumped water to maintain the wetlands. Found in wetland areas that were diked and drained for agriculture, these freshwater managed wetlands are generally severed from the waters that once flooded the wetlands naturally. Instead of receiving waters from streams and rivers, managed wetlands receive water pumped through pipes and canals. The level of water in such wetlands is almost entirely controlled by the wetlands managers.

The Klamath Basin is an excellent illustration of the separation of the wetlands from the rivers and streams that formerly fed them. Because of the low water levels in Klamath Lake in summer 2001, federal officials withheld water from the Klamath Basin wildlife refuges and hundreds of farmers to protect endangered fish. There are no longer the natural flood flows and streams that once fed the vast marshes of the Klamath area. The wetlands were almost dried up when the Bureau of Reclamation released sufficient water to fill them just in time for the fall waterfowl migration. It is unclear whether the Corps will have jurisdiction over managed wetlands such as these.



Lower Klamath National Wildlife Refuge. Photo courtesy of John Muegge.



Swans at Lower Klamath National Wildlife Refuge. Photo courtesy of John Muegge.

Managed wetlands that are in fact navigable will likely remain within Corps jurisdiction. However, many managed wetlands are not navigable and lack a natural connection to navigable waters. As such, these wetlands may now be outside the Corps' jurisdiction. However, the recent Ninth Circuit decision (*Headwaters v. Talent Irrigation District*) determined that irrigation ditches are tributaries of navigable waters, and therefore subject to regulation under the Clean Water Act. Because managed wetlands are fed by irrigation ditches or other similar conveyances of natural waters, they may be considered hydrologically connected to navigable waters, and thereby, remain subject to Corps jurisdiction after SWANCC.

Desert Springs and Playas

Virtually every water body in the desert is ephemeral or intermittently wet because of the infrequent rainfall and high temperatures in desert regions. Intermittent streams in mountainous regions often drain into terminal basins, or ephemeral lakes. These terminal basins, which are found in varying sizes throughout the Mojave Desert, do not drain to rivers. The underlying fault blocks prevent the lakes from draining, just as hard soils prevent vernal pools from draining. The Salton Sea and Owens Lake are very large terminal basins; smaller basins include Mono Lake in Mono County; Searles, Emerson and Bristol Lakes in San Bernardino County; and the Panamint Valley Lake and Soda Lake in Inyo County. When dry, these terminal basins are known as "playas" and the intermittent streams are known as "washes." Desert springs and oases appear where groundwater flows to the surface, and are generally wet year round (except where pumping of groundwater has affected the level of the underlying aquifer).



Soda Lake, San Bernardino County, East Mojave Scenic Area. Photo courtesy of Mona Bourrell, California Academy of Sciences, 1987.

Desert springs, seeps, playas, and washes are very important habitat areas, containing much greater diversity and numbers of plants, animals, and birds than in the surrounding upland areas. For example, of the 2,200 species of plants found in the Mojave Desert, half are associated with wetland areas. Desert washes contain 44 special status plants and animals. Alkali playas contain 25 special status plants and animals.¹⁷⁹ Such wetlands areas are critical habitat for the endangered bighorn sheep, as well as other desert wildlife.



Ash Valley Springs, Inyo County, Mojave Desert. Photo courtesy of Marc Hoshovsky, California Department of Fish and Game, 1987.

Corps jurisdiction will continue to apply to those terminal basins that are navigable, such as the Salton Sea and Mono Lake, as well as to their adjacent wetlands. In these cases, the isolated wetlands have a demonstrable connection to interstate commerce – interstate travelers come to these areas to enjoy boating, bird watching, and other forms of recreation. However, for those terminal basins, playas, seeps, springs, and washes that are not navigable, SWANCC has probably extinguished Corps jurisdiction. For the most part, these isolated wetlands have no connection to navigable waters or their tributaries. Despite the presence of endangered species and their value as habitat, such desert wetlands are not subject to Clean Water Act regulation unless the Corps can establish a hydrologic connection to navigable waters.



Panamint Valley Lake Bed, Inyo County. Photo courtesy of Marc Hoshovsky, California Department of Fish and Game, 1985.

Diked Wetlands and Salt Ponds

Since the 1850s, settlers diked the tidal marshes of San Francisco Bay and pumped out the enclosed water. These “reclaimed marshes” were then used for agriculture – particularly, for hay, grazing and pastureland, and dairy farms. Of the 280 square miles of tidal wetlands originally diked off from the San Francisco Estuary (excluding salt ponds and managed wetlands), only about 80 square miles (51,000 acres) of the diked baylands had not been filled in for development by 1982. The remaining unfilled diked baylands consist of uplands, ponds, lagoons, marshes, and other wetlands.¹⁸⁰

Because of poor drainage, the diked baylands are frequently flooded during the winter, and standing water is often present from November through May. These seasonal wetlands attract large concentrations of waterfowl and shorebirds during the winter migration. Although all of the diked baylands meet the Corps’ definition of wetlands, the farmed areas are exempt from regulation under the Clean Water Act. The non-farmed seasonal wetlands are regulated by the Corps.

After SWANCC, the Corps will need to demonstrate hydrological connections between the non-farmed diked baylands and navigable waters to continue to regulate these seasonal wetlands areas. While most of the 6,800 acres of seasonal wetlands are adjacent to the Petaluma and Napa Rivers, and presumably flooded by those rivers or their tributaries, some are further inland. Those that are some distance from navigable waters or tributary creeks may no longer be under the Corps’ jurisdiction. As the Petaluma and

Sonoma areas are some of the fastest growing parts of the Bay Area, the diked baylands face strong development pressures.

Salt ponds are another category of diked baylands that might be affected by SWANCC. Diked off from the Bay more than a century ago, salt ponds were important commercial enterprises in the Bay Area. At one time, the Leslie Salt Company owned more than 35,000 acres of salt ponds in San Francisco Bay. Salt ponds and levees provide important nesting and foraging habitat for a variety of shorebirds and waterfowl that stop in the Bay Area as they migrate along the Pacific Flyway each winter and spring. In the North Bay, 10,000 acres salt ponds have been retired from salt production and are owned by the Department of Fish and Game. These ponds are being restored for wetlands habitat. However, Cargill Salt still owns 18,000 acres of salt ponds in the South Bay, near the City of Fremont. Various development plans have been proposed over the years, although Cargill's property is also considered highly valuable for restoring tidal marsh. The pressure to develop the property for housing or commercial facilities is very high on this large expanse of relatively flat land located on the shore of the Bay.



Salt Ponds, San Francisco Bay National Wildlife Refuge (view to the southwest over looking the approach to the Dumbarton Bridge). Photo courtesy of Robert Campbell/Chamois Moon.



Salt Ponds, San Francisco Bay National Wildlife Refuge (view to the northeast, south of the Dumbarton Bridge). Photo courtesy of Robert Campbell/Chamois Moon.

Depending on how the Corps and EPA (and eventually the courts) define “adjacent wetlands,” some salt ponds may no longer be within the Corps’ jurisdiction.^{*} Some of the ponds are clearly impoundments of San Francisco Bay water, and are therefore “waters of the United States.” These ponds are connected to the Bay via tide gates and ditches or canals. Other ponds, however, do not have such connections. The crystalizer ponds, which are the harvesting area in the salt making process, may not be considered impoundments. Although they are the most saline of the salt ponds, they still provide

^{*} Salt ponds will still be regulated by the Regional Water Quality Control Board under the Porter-Cologne Act and the San Francisco Bay Conservation and Development Commission (BCDC) under the McAtteer-Petris Act. BCDC’s jurisdiction includes all tidal waters and a 100-foot shoreline band. Although salt ponds are diked off from the Bay, they are statutorily included in BCDC jurisdiction (California Government Code Sections 66610(b) and (c)).

important habitat. According to EPA staff, the question of federal jurisdiction over the crystalizer ponds will probably need to be sorted out by the courts.

ENDANGERED SPECIES AND ISOLATED WETLANDS

The SWANCC decision struck down the Migratory Bird Rule, which extended Corps jurisdiction to wetlands that “are or would be habitat for endangered species.”¹⁸¹ As a result, even though an isolated wetland is known to be habitat for a threatened or endangered species, some other connection to navigable waters or interstate commerce must be found for the Corps to assert jurisdiction and thereby trigger the provisions of the federal Endangered Species Act (ESA).

As discussed above, the FWS does not have direct permit authority in wetlands (see page 44 for the discussion of the role of the FWS in wetlands permitting). Its involvement must be triggered by a federal project, funding, or permit. If there is no federal permit or funding involved, the ESA has no provision that triggers FWS review of a project. State or local agencies frequently notify the FWS of a proposed project through the public notice requirements under the California Environmental Quality Act (CEQA) or other statutes. If that occurs, and there are listed species or critical habitat involved, then the project proponent must obtain an “incidental take” permit under Section 10 of the ESA.

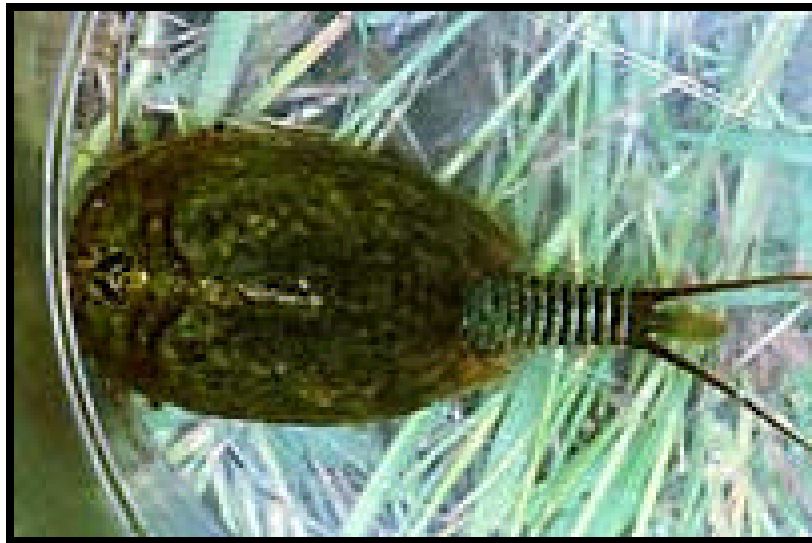


California Tiger Salamander. (The tiger salamander, 75-125 mm long, is a federally listed endangered species found in vernal ponds and larger, long-lasting vernal pools.) Photo courtesy of William Flaxington.

The SWANCC decision means that the FWS won't be automatically involved in projects involving isolated wetlands outside of Corps jurisdiction. Also, for the FWS to impose restrictions on a project or require mitigation, the wetlands must contain listed species or be designated as “critical habitat” by FWS. Thus, a development proposal affecting non-navigable isolated wetlands that have no connection to other “waters of the United States,” but which harbor listed species, may not be reviewed under the ESA. Examples of such wetlands might be smaller complexes of vernal pools with endangered tadpole shrimp or other listed species, but no overland flow to a tributary to a navigable water.

Similarly, desert springs that provide habitat for endangered big horn sheep but with no outflow to a tributary to a navigable water would not be subject to the 404 program nor the Section 7 Consultation process. The same would be true of isolated navigable wetlands such as snow-melt ponds or vernal lakes that have no connection to interstate commerce (e.g., recreational boating, fishing, bird watching, etc.).

Although there is no formal consultation requirement in the ESA for projects that lack a federal agency connection, there remains a duty for landowners to apply for a permit for incidental take under Section 10 of the ESA. Landowners or project developers may be unaware that this requirement still applies to isolated wetlands, even if the Corps no longer has jurisdiction.



Vernal Pool Tadpole Shrimp (The tadpole shrimp is a federally listed endangered species, about the size of a quarter, that lives in vernal pools.) Photo courtesy of Dianne Fristrom.

Similarly, the California Endangered Species Act (CESA) prohibits activities that would jeopardize a listed species or destroy its essential habitat. However, for those isolated wetlands affected by SWANCC, the CESA protections would be invoked only if a state-listed species is known to inhabit the isolated wetland. Wetlands containing unlisted species do not receive protection under CESA.*

* The DFG maintains a database of sensitive species that occur in California. This database, known as the California Natural Diversity Data Base (CNDDB), contains 1,737 rare and sensitive species; 320 of which are associated with wetlands. Of the total number of rare and sensitive species, 186 plants and 121 animals are federally listed as endangered or threatened. The state has listed 220 plants and 78 animals. Thus, of the total number of known rare species in the state, only about 300, or one-sixth, receive protection under the federal and state endangered species laws.



Sebastopol Meadowfoam (a federally and state listed endangered species found in vernal pools.) Photo courtesy of Dean Wm. Taylor.

Chapter Seven: How Should California Respond to SWANCC?

SWANCC presents California with a decision: whether to take on the regulation of isolated wetlands, or wait for further developments. How California responds will depend on how the Governor, the Legislature, and the public view the potential risk to the state's remaining wetlands resources, and the potential costs of implementing a state regulatory program.

Other than the legal memorandum issued in January 2001, no official guidance has been issued by the Corps and EPA interpreting the SWANCC decision. Nonetheless, there is no doubt that the Court's decision was intended to contract, rather than expand, Corps regulation of wetlands. Specifically, the Court said that the Corps could not regulate isolated wetlands unless there was a relationship with interstate commerce. Although the scale of the impacts on wetlands that might result from the contraction of the 404 program has yet to be determined, one can describe the risk to California of reduced protection of isolated wetlands. That risk is primarily the further loss of isolated wetlands and their associated beneficial functions. There is general consensus that these functions are important from both an ecological and social point of view. California's extensive historical loss of wetlands will amplify the adverse impacts of further losses. At the same time, there is also concern that the burden of protecting isolated wetlands falls disproportionately on private property owners.

IMPORTANCE OF ISOLATED WETLANDS

The term "isolated wetlands" is a regulatory description of wetlands that are not part of a system of surface waters that are tributary to navigable waters. However, from an ecological perspective, isolated wetlands are anything but isolated. They are part of a diverse landscape, in which they support a wide variety of plants and animals. Although there are some species that exist only in isolated wetlands, many animals use isolated wetlands for foraging or resting habitat, as they travel to seasonal habitat areas. For example, migratory birds will rest and feed at vernal pools as they migrate to their spring nesting habitat. Some species of butterflies also use vernal pools in their annual migrations. Thus, despite their description, isolated wetlands occupy an important niche in California's environment. Not only do isolated wetlands help to maintain biodiversity, they also support rare and endangered species, and provide many of the functions and services associated with other, non-isolated wetlands.

Biodiversity

Isolated wetlands provide aquatic habitats and communities of wetlands plants. These habitats offer food, nesting, and cover for a variety of animals. As such, they are "islands" of aquatic habitat in areas that sometimes otherwise lack the resources (water, cover, and forage) that attract and sustain animals.

Isolated wetlands are particularly important in desert areas, where wetlands and riparian areas support birds, fish, amphibians, and other animals that cannot survive in arid environments. Studies have found that bird density and abundance is much greater in desert wetlands than uplands areas.¹⁸² For example:

- Bird densities in dry parts of the Death Valley National Park were the lowest of nine monitored desert study sites;
- Bird abundance and activity in the Sonoran Desert is three times greater in riparian habitats than in adjacent desert upland areas;
- Bird densities and diversity in vegetated desert washes in the Sonoran Desert were five to 10 times greater than surrounding desert uplands; and
- Desert wetlands are important resting and foraging sites for migratory birds and are used to a greater degree as stopover sites than adjacent uplands.

Additionally, isolated wetlands contain aquatic species, such as fish, frogs, and toads that are completely dependent on wetland habitats and cannot survive in areas lacking permanent water. Studies performed in Death Valley National Park over the last 50 years have documented the importance of isolated wetlands to a wide variety of water dependent species that are found within the springs, seeps, and riparian areas in the desert.¹⁸³ Some of the findings are as follows:

- Various forms of pupfish and speckled dace are present at only five springs or seeps within Death Valley National Park;
- Drought-tolerant species such as red-spotted toads are rarely found any distance from water;
- A survey in 1996 found 176 western toads at Darwin Falls in Death Valley National Park – 156 of the animals were found in surface streams or pools.

Aquatic insects and mollusks are also significant components in desert wetlands. Many species of beetles, crawling insects, and springsnails are strictly confined to water and could not survive if exposed to the desiccating conditions of the upland desert areas.

Vernal pools are home to many plants and animals that in turn form a valuable part of the food chain for a wide array of animals, including birds of prey, shorebirds, migratory waterfowl, frogs, toads, salamanders and pollinating insects. Vernal pools support a variety of invertebrates, algae, or mosses that can persist over dry intervals, taking the form of seeds, cysts, or spores.¹⁸⁴ As discussed earlier in this paper, these species have adapted to the periodically dry character of vernal pools, so that their life cycles are often completed within the few weeks when the pools are full of water, or the relatively short period during which the soils retain moisture.

Habitat for Rare and Native Species

California is part of the continent of North America, but can be considered an ecological island. As one author put it, California has extremes of topography, climate, and varieties of species unknown in more temperate or less diverse regions.¹⁸⁵ It is isolated by sea, mountain, and desert from the rest of the continent, and as a result, the plants and animals

of the various regions have adapted to their specific environments. California is generally recognized for its wealth of endemic^{*} and rare plants. With nearly half of the 4,452 native plant species in California Floristic Province (CFP)[†] considered endemic, California's level of endemism exceeds that of most continental regions and approaches that of many oceanic islands.¹⁸⁶

There is a direct relationship between endemism and endangered species, as highly specialized plants and animals cannot exist outside their particular habitats. In California, the state or federal government has listed 373 species of plants and animals, including invertebrates, as endangered or threatened. Only Hawaii has more endangered and threatened species.

California's vernal pools are well known for their unique flora and fauna. The first published references to vernal pools and their distinctive plants occurred in 1925. By 1937 it was recognized that the number of vernal pool endemics was very large.¹⁸⁷ There are 169 native plant species associated with vernal pools, 69 of which are endemics.

Studies have found that vernal pools behave like small islands. Individual pools typically contain only ten to 15 species of plants. These relatively small numbers of species result from size limits and because individual pools and pool clusters often include only one species of a given genus.¹⁸⁸ Vernal pools are relatively unfavorable environments to any but those species well-adapted to the harsh dry conditions. As a result, they are generally resistant to invasion by non-native plants. Livestock may have adverse effects on vernal pool vegetation, but moderate grazing often has little impact as long as the land remains in dry pasture use.

This high rate of endemism in vernal pool plants contributes greatly to the overall pattern of biodiversity, but also makes vernal pool species more vulnerable. This is also true of the amphibians and crustaceans found in vernal pools. Vernal pool species such as the conservancy fairy shrimp, vernal pool tadpole shrimp, riverside fairy shrimp and California tiger salamander are federally listed as threatened or endangered species. Currently, 82 species of plants and animals associated with vernal pools are rare, threatened or endangered.¹⁸⁹

Benefits to Society

Wetlands, including isolated wetlands, provide many benefits and services to human society. These include improving water quality, reducing floodwater flows, and reducing erosion.

The ecological benefits of isolated wetlands have been described above, but it should be noted that biodiversity and wildlife directly benefit humans. According to the U.S. EPA, more than half of all U.S. adults (98 million) hunt, fish, watch birds, or photograph wildlife. They spend a total of \$59.5 billion annually on these pursuits.¹⁹⁰ Much of the

^{*} Endemic species are those that occur under highly restricted conditions due to the presence of a unique environmental factor that limits their distribution.

[†] The California Floristic Province is the region including all non-desert areas of the state as well as portions of southwestern Oregon and Baja California sharing a similar climate and vegetation.

wildlife pursued in these recreational activities depends on wetlands for their survival. Isolated wetlands play an important role in the life cycles of migratory waterfowl; vernal pools offer incomparable scenic beauty for painters and photographers. People appreciate these natural landscapes through hiking and boating, painting and photography, and enjoy being on or near the water. A large part of the enjoyment is the variety of life forms, the peace and quiet, and the sounds of the natural environments. They offer a pleasant change of scene from the human landscapes of cities, towns, and subdivisions.

The other functions of wetlands, such as improving water quality, are not separate for isolated wetlands and other wetlands (wetlands functions are described in more detail on pages 11-13 of this paper). Often there are groundwater connections between isolated wetlands and surface waters. According to the National Research Council, the scientific basis for policies attributing less importance to isolated wetlands than to other wetlands is weak.¹⁹¹ Some of the wetlands functions performed by isolated wetlands include the following:

- Enhancing water quality (e.g., processing nitrogen, retaining phosphorous);*
- Reducing erosion (trapping sediment). Wetland vegetation absorbs energy, slowing the flow of water, and thereby preventing erosion; and
- Storing surface water (reducing flood flows and reducing damage from flood waters; maintaining habitat during dry seasons).

CONTROVERSY OVER REGULATING ISOLATED WETLANDS

Landowners and developers believe that balanced regulation of wetlands and endangered species is appropriate. But they object when environmental protection sacrifices the rights of individuals for the benefit of the public, particularly when the individuals are not compensated for their losses. These concerns are heightened when they do not believe there to be a strong connection between the regulatory action and the proclaimed public benefits. For this reason, the regulation of isolated wetlands has been especially controversial.

In the SWANCC case, property rights advocates found vindication when the Supreme Court overturned the Migratory Bird Rule. These groups had long contended that isolated wetlands have no significant impact on interstate commerce, and should not be regulated by the federal government. As the Pacific Legal Foundation described it, "...the average person finds it more than a little difficult to understand a sweeping ban on use because a certain bird has been known to fly over an area."¹⁹² Others questioned how "mudflats or potholes" that harbor migratory birds "rise to being a player in interstate commerce."¹⁹³ They do not object to state or local governments exercising their authority over land use. In fact, they noted that in the SWANCC case, the state of Illinois had given the landfill plan extensive scrutiny, and required costly mitigation before granting approval.

* Some waste water treatment facilities, including Sacramento Regional County Sanitation District and the Novato Sanitation District, have built or restored wetlands to receive discharges of treated wastewater to further cleanse the waters of pollutants while providing habitat.

These concerns extend to the regulation of isolated wetlands to protect endangered species such as the fairy shrimp. If the regulation were necessary to prevent the flooding of homes downstream from the vernal pools, there would be little objection. However, some landowners' groups believe that isolated waters have, by definition, little effect on other bodies of water, and therefore an "imperceptible effect on other persons."¹⁹⁴

In addition, some argue that the standards for listing endangered species are flawed and vague. In particular, the Endangered Species Act doesn't require the U.S. Fish and Wildlife Service to conduct new studies before listing a species as endangered, allowing the agency to rely on existing information. Even when the existing data is spotty or questionable, the species can be listed if the FWS foresees a threat to its long-term survival. For example, the Pacific Legal Foundation notes that the FWS listed the "tiny and abundant" fairy shrimp as endangered in an emergency listing in 1992. Since then, they argue that "there has been an increase in the wetlands where the shrimp live."¹⁹⁵

Ultimately, the concern over regulating isolated wetlands boils down to protecting private property rights. Restrictions on the use of land containing vernal pools and endangered species impose a burden on property owners, who are rarely compensated for their losses. Some argue that the endangered species laws have perverse incentives, that they induce landowners to destroy habitat or shoo away species to avoid regulation. Similarly, there are documented instances of landowners diking or draining their wetlands to avoid regulation. The current system of regulating wetlands and endangered species should be overhauled, some argue, and replaced with a system that uses market incentives to encourage landowners to protect the environment.

WETLANDS POLICY CHOICES

The Supreme Court has excluded certain wetlands from Corps jurisdiction, based on their relation to interstate commerce. The Court's decision arose from its interpretation of the constitutional limits on federal regulatory authority. It was not based on the ecological importance or scarcity of the resources in question. The Court indicated that in its view, it is properly the responsibility of states and local governments to regulate isolated wetlands.

California law and policy already acknowledge the ecological importance of wetlands. The Porter-Cologne Act authorizes the State Water Resources Control Board (SWRCB) to regulate discharges into any of the state's waters, including isolated wetlands. The law also charges the SWRCB with issuing (or denying or waiving) permits for any discharges into wetlands in the state. However, this aspect of state authority has not been developed and implemented because the Corps has taken the lead in regulating wetlands. As discussed earlier in this paper, none of California's other environmental protection programs address wetlands comprehensively.

There are both policy and ecological reasons for the state to consider regulating isolated wetlands:

- First, the state Wetlands Conservation Policy calls for "no net loss" of wetlands. Most of the state's freshwater wetlands habitat in coastal areas and the Central Valley has

already been lost. Without regulatory mechanisms to protect isolated wetlands, California will lose more wetlands.

- Second, landowners and developers will face increasingly inconsistent regulatory requirements for isolated wetlands. The Regional Boards, DFG, Coastal Commission, San Francisco Bay Conservation and Development Commission, and local governments each have different standards and requirements for permits involving wetlands. Even within a single Regional Board, isolated wetlands will be subject to different procedures and standards than those that apply to wetlands adjacent to navigable waters.
- Third, the regulated community may think that all regulatory authority has been extinguished from their isolated wetlands when, in fact, the state maintains water quality authority over those wetlands. Projects that should be reviewed by Regional Boards may fall through the cracks.
- And fourth, because wetlands losses in California have been so extensive, the remaining wetlands warrant protection. Wetlands functions have been impaired, so that California faces high costs for flood control infrastructure, soil erosion prevention, and water purification. Wetlands habitat has been lost, with the result that California has a large number of rare, threatened, and endangered species. The remaining wetlands are some of the last vestiges of California's unique ecosystems.

On the other hand, the State may find that the costs of a wetlands regulatory program outweigh the risks presented by SWANCC. An estimate of program costs is beyond the scope of this paper, but clearly it would require staff resources to develop and implement new policies and regulations. The costs of regulating wetlands would depend on the approach taken by the Legislature and the Governor. Expanding the wetlands regulatory functions of an existing department, such as the DFG or SWRCB, could entail several millions of dollars. In contrast, many more times that amount would be needed to create a separate, stand-alone wetlands regulatory program. Filling the regulatory gaps created by SWANCC would probably cost less than implementing a program that covers all wetlands.

In addition to the direct costs to the State, beefing up the state's wetlands regulatory program would impose costs on the regulated community. Some members of the regulated community regard the SWANCC decision as a much-needed curtailment of wetlands regulation. They would no doubt object to additional state regulation of wetlands, the associated costs of compliance, and further restrictions on their land. Landowners and property rights organizations would be likely to oppose additional state wetlands regulation unless they were reasonably certain that property rights would be protected, and that there would be reasonable consideration of the social and economic costs imposed on landowners.

Regulatory Options

Should the State choose to create a wetlands regulatory program, it could take several forms. One approach would be to plug the gap created by SWANCC. As an example, Wisconsin adopted a water quality certification program, the same as the Section 401

process, just for isolated wetlands affected by SWANCC. This approach simply extends the federal regulatory provisions to all wetlands within the state. California could emulate this approach by amending the Porter-Cologne Act to require that the Regional Boards carry out water quality certifications for all wetlands, regardless of their federal jurisdiction.

The Porter-Cologne Act gives the state the authority to regulate discharges of wastes into all waters of the state, including isolated wetlands. Although the law requires that such discharges be reported to the appropriate Regional Board, in practice, the Regional Boards have not enforced this requirement. As a result, either landowners or the SWRCB and Regional Boards may be vulnerable to lawsuits for not fulfilling these statutory requirements, particularly as they apply to isolated wetlands.

The SWRCB has not issued any direction to the Regional Boards, nor to the regulated community, regarding how to handle isolated wetlands affected by SWANCC. The Legislature could direct the SWRCB to enact regulations governing wetlands no longer regulated by the Corps. In addition, the Legislature could require the SWRCB to inform landowners and developers of their legal obligation to file a report of waste discharge with their Regional Board for projects involving fill in wetlands. Implementing these new provisions would require additional staff and funds for the SWRCB and Regional Boards. While this might not be possible with this year's budget shortfall, the necessary increase in resources could be provided to the SWRCB in future years.

Alternatively, the Legislature could embellish the Porter-Cologne Act to clarify its authority over wetlands. Such an amendment might state that reports of waste discharge are required for projects involving any wetlands in the state, and allow appropriate exemptions for those projects subject to the Corps 404 program. It could direct the SWRCB to develop a beneficial use and water quality objective specifically for wetlands, as well as a statewide wetlands policy to be implemented by the Regional Boards. The Regional Boards would then be required to apply the beneficial use designation to wetlands within their region, and issue waste discharge requirements for projects affecting wetlands.

Another approach would be to prepare to regulate isolated wetlands if necessary, but to wait for a while to see how the federal regulatory program changes after SWANCC. The Legislature could direct the SWRCB to develop a plan for regulating isolated wetlands by a specified date. The State could then wait to see what, if any, additional guidance is forthcoming from the Corps. The Legislature could then order the regulatory plan to be implemented when it determines that it is necessary and appropriate to do so.

A final option would be to create a stand-alone statewide regulatory program for wetlands. Such a program could expressly pursue the goals of no net loss of wetlands and protect the beneficial functions of wetlands. Unlike the 404 program or the Porter-Cologne Act, this approach would allow the state to treat wetlands as ecological systems. Developing a wetlands regulatory program would require the state to address a myriad of controversial issues, some of which are listed here:

- What agency should regulate wetlands? The SWRCB has a well-developed structure for statewide regulation and enforcement. DFG has the expertise in biology, ecology, botany, and other sciences.

- How should wetlands be defined? The state would need to develop a definition for land use regulatory purposes. The definition could broadly define wetlands, like the Cowardin definition, to encompass a greater range of wetlands. Or the state could develop a somewhat narrower definition targeting wetlands of greatest value or importance to California.
- Should wetlands be regulated in the context of watersheds? If so, how would the wetlands program integrate with other state efforts to improve watershed management (e.g., nonpoint source pollution programs, CalFed watershed programs, and Regional Board efforts to manage water quality on a watershed basis)?
- Should the state establish its own classification of wetlands, one that more closely reflects the “drier” nature of California’s wetlands?
- How should a new state wetlands regulatory program mesh with the existing state/federal program structure?
- What activities should be regulated – the 404 program regulates only dredging and disposal of pollutants. Should the state take a broader view, including other activities that directly affect wetlands, such as draining, diking, disking, and pumping groundwater?
- What should be the requirements for project alternatives? The 404 program contains the rebuttable presumption that an upland site is available for non-water-dependent activities in wetlands.
- How should the state address mitigation requirements? Mitigation could be required in all cases, or just for those projects that have impacts greater than a specified area. Mitigation requirements could be proportionate to the level of wetlands function lost as a result of the project. Should mitigation banking be permitted, or even required, in cases of small wetlands impacts?
- Should some wetlands be off limits to development? Perhaps pristine undisturbed wetlands should be fully protected, given how few are left in California.

Other Policy Options

Perhaps the most straightforward solution to the uncertainty created by SWANCC would be for Congress to amend the Clean Water Act to specify what it means by “waters of the United States.” Such a clarification could avoid additional litigation to sort out the meaning of terms such as “navigable waters,” “tributaries,” and “adjacency.” Congress could include all waters and wetlands, or specify that some smaller set of wetlands and waters fall within federal jurisdiction.

Returning to the realm of the possible, the Legislature could consider other approaches to conserving or protecting isolated wetlands. They could be used in conjunction with a state regulatory program, or as stand-alone efforts. Some ideas include:

- The California Clean Water, Clean Air, Safe Neighborhood Parks, and Coastal Protection Act of 2002 (Proposition 40 in the March 5, 2002 election) contains

\$75 million for grants for preserving agricultural lands and grazing lands, including oak woodlands and grasslands (Section 5096.650(f)). If the voters approve the Act, the Legislature could appropriate \$10 million of this grant money for preserving vernal pools.

- Create a State Wetlands Conservancy, which could use state funds to acquire, restore, and enhance wetlands throughout the state. Alternatively, the state could create specific types of wetlands conservancies, such as a Central Valley Wetlands Conservancy, or a Vernal Pools Conservancy.
- Use bond funds to encourage landowners to protect and enhance wetlands. Landowners that preserve isolated wetlands, or other types of wetlands, or enhance degraded wetlands, could be eligible for grants to assist in implementing land management practices consistent with wetlands preservation. Such practices could include planting buffer strips of native vegetation on uplands surrounding wetlands areas; planting native vegetation and fencing riparian areas to protect them from cattle and sheep; and developing agricultural drainage systems and tailwater ponds that use native plants and wetlands to reduce erosion, improve water quality, and improve habitat.

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¹⁴³ 33 CFR 329.5-329.6.

¹⁴⁴ The following discussion is excerpted from William L. Want, *The Law of Wetland Regulation*, West Group, June 2001. Section 4:46, pp. 4-35 to 4-36.

¹⁴⁵ 33 CFR 328.3(a)(8).

¹⁴⁶ 33 CFR 328.3(a).

¹⁴⁷ The discussion of tributaries is excerpted from R. Clark Morrison et al., *The Scope of Federal and State Jurisdiction over Navigable Waters After SWANCC v. United States*, Morrison & Foerster, LLP. August 27, 2001.

¹⁴⁸ 504 F.2d 1317 (6th Cir. 1974).

¹⁴⁹ 611 F.2d 345, 347 (10th Cir. 1979).

¹⁵⁰ 767 F. Supp. 1030 (N.D. Cal. 1997).

¹⁵¹ No. 99-35373, 2001 U.S. App. LEXIS 3718 (9th Cir. March 12, 2001).

¹⁵² 33 CFR 328.3 (a)(8).

¹⁵³ 33 CFR 328.3(c).

¹⁵⁴ As described by Scott Bergstrom in *Overflowing Jurisdictional Banks: The Extension of Regulatory Authority over Navigable Waters Under Section 404 of the Clean Water Act*, Kansas Law Review, Vol. 41, 1993, pp 847-849.

¹⁵⁵ *U.S. v. Wilson*, 133F.3d 251 (4th Cir. 1997).

¹⁵⁶ R. Clark Morrison, Alicia Guerra, Derek Weller, and Scott Birkey, *The Scope of Federal and State Jurisdiction Over Navigable Waters After SWANCC v. United States*, Morrison and Foerster LLP, August 27, 2001.

¹⁵⁷ *United States v. Larkins*, 852 F.2d 189 (6th Cir. 1988).

¹⁵⁸ As amended by California Statutes of 2000, Chapter 964 (AB 2286).

¹⁵⁹ California Public Resources Code, Sections 5810 – 5818, added Statutes 1976, Ch. 462, Section 1.

¹⁶⁰ California Public Resources Code, Section 5811.

¹⁶¹ California Public Resources Code, Section 5812 (a).

¹⁶² California Resources Agency, 1998, *op. cit.* p. 1.

¹⁶³ DFG's Wetlands Inventory and Conservation Unit makes their data available online: http://www.dfg.ca.gov/whdab/html/by_program.html#WICU

¹⁶⁴ California Water Code Sections 13000 et. seq.

¹⁶⁵ California Water Code Section 13260.

¹⁶⁶ California Water Code Section 13263(a).

¹⁶⁷ California Water Code Section 13050 (d).

¹⁶⁸ California Water Code Section 13050 (e).

¹⁶⁹ California Water Resources Control Board, January 2001, *op. cit.*, p. 5.

¹⁷⁰ Plans and policies of the SWRCB include the Antidegradation Policy, the Thermal Plan, the Water Quality Control Policy, the Ocean Plan, the Bays and Estuaries Policy, the Powerplant Cooling Policy, the Delta Plan, the Pollutant Policy for San Francisco Bay and the Delta, the Nonpoint Source Management Plan, and the Sources of Drinking Water Policy.

¹⁷¹ Personal communications with Bruce Wolf, Chief of Watershed Management Division, San Francisco Bay Regional Water Quality Control Board and Oscar Balaguer, Chief of Water Quality Certification Unit, SWRCB, January 4, 2002.

¹⁷² California Public Resources Code Sections 29000 - 29780, added Statutes of 1977, Ch. 1155, Section 13.

¹⁷³ California Public Resources Code, Section 29005.

¹⁷⁴ California Public Resources Code, Sections 30000 et seq.; 16 USC 1451 et seq.

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- ¹⁷⁵ The “CEQA Guidelines” are the regulations implementing CEQA. California Code of Regulations, Title 14, Chapter 3, Sections 15000-15387. Appendix G of the Guidelines specifies the form of the environmental checklist.
- ¹⁷⁶ 33 CFR 328.3 (a)(3).
- ¹⁷⁷ 33 CFR 329.11.
- ¹⁷⁸ Personnal communication with Mark Sudol, Chief, Army Corps of Engineers, Regulatory Branch, Los Angeles District, August 2001.
- ¹⁷⁹ Personal communication, Roxanne Bittman, California Department of Fish and Game.
- ¹⁸⁰ Save San Francisco Bay Association, *San Pablo Baylands: A Plan to Protect and Restore the Region’s Farms and Wetlands*, Oakland, Ca, March 1999. pp 22-26.
- ¹⁸¹ Federal Register, Volume 51, No. 219, p. 41217. October 1986.
- ¹⁸² Douglas L. Threlkoff, *Wetland and Riparian Resources of Death Valley National Park and Their Susceptibility to Water Diversion Activities*. National Park Service, Death Valley National Park, Resources Management Division. April 1998. pages 10-12
- ¹⁸³ *Ibid*, page 12.
- ¹⁸⁴ National Research Council, 1995, *op. cit.*, p. 157.
- ¹⁸⁵ Elna Baker, *An Island Called California: An Introduction to Its Natural Communities*. University of California Press, Berkeley and Los Angeles, 2nd Edition, 1984. p. 417.
- ¹⁸⁶ R. Douglas Stone, *California’s Endemic Vernal Pool Plants: Some Factors Influencing their Rarity and Endangerment*. In Ikeda and Schisling, eds., *Vernal Pool Plants – Their Habitat and Biology*. Studies from the Herbarium, Chico State University, Chico. Number 8, June 1990. p. 96.
- ¹⁸⁷ *Ibid* p. 90.
- ¹⁸⁸ *Ibid*, p. 97.
- ¹⁸⁹ California Department of Fish and Game, Natural Diversity Data Base. Rare species include those that are not officially listed by the state or federal government, but which are proposed for listing or are known to be in decline.
- ¹⁹⁰ U.S. Environmental Protection Agency
<http://www.epa.gov/owow/wetlands/vital/people.html#recreation>
- ¹⁹¹ National Research Council, 1995, *op. cit.*, p.156.
- ¹⁹² Robert K. Best, *A Commonsense Policy to Protect the Environment*. Pacific Legal Foundation Monograph Series, August 1997, Issue Number MS-4. p. 3.
- ¹⁹³ Harold Johnson, *Court Drains Humbug from Clean Water Act*. Pacific Legal Foundation. www.pacificlegal.org/op-ed/edhejswn.htm
- ¹⁹⁴ Robert K. Best, 1997, *op. cit.*

¹⁹⁵ Harold Johnson, *Sneaky Statutory Serfdom – The Endangered Species Act Threatens Our Environment, Property Rights*. Pacific Legal Foundation, available at www.pacificlegal.org/op-ed/op-esa.htm